

RAILWAY AGE

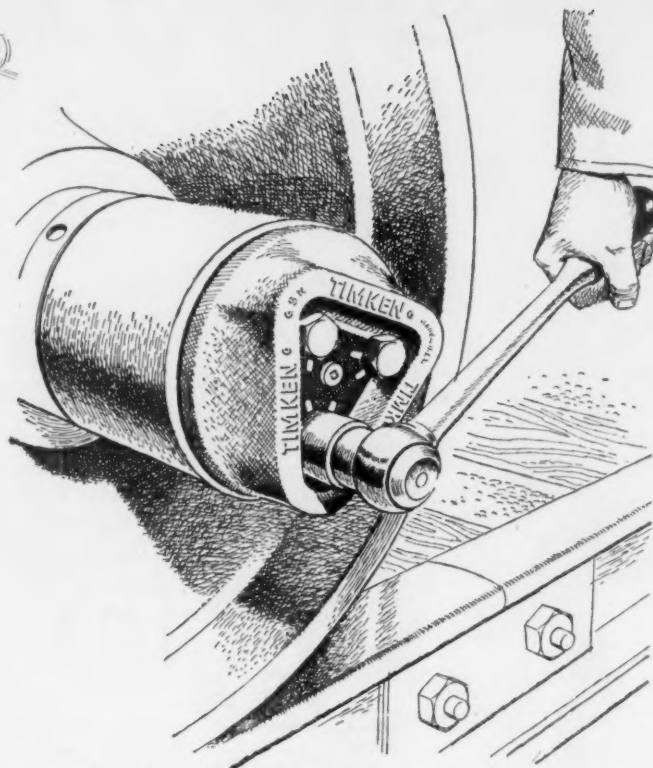
One of Five Simmons-Boardman Railway Publications

YOU CAN'T CURE WITH A "CRUTCH"



The one sure Cure for the Hot Box Problem: Timken® Bearings

*...and they pay for themselves
over and over and over in operating
and maintenance savings*



USE of "crutches"—devices attempting to improve friction bearing performance—will never answer the hot box problem. The one sure cure is Timken® tapered roller bearings, because they eliminate the cause of hot boxes—the friction bearing itself.

EXTRA SAVINGS, TOO

With Timken bearings, you also slash the cost of bearing inspection and lubrication. Costs that hang on even with crutch devices. Timken bearings cut terminal bearing inspection time by 90%, reduce lubricant costs as much as 95%. The fact is, the new Timken heavy-duty type AP (All-Purpose) bearing assembly will go three years without the addition of lubricant. When all railroads go "Roller Freight", they'll save more than \$190 million a year, earn an estimated 22% net annual return on the investment.

Doing away with the hot box problem is

THE TAPER DOES IT

a simple job for Timken bearings. They roll the load instead of sliding it. There's no metal-to-metal sliding friction as with friction bearings. And the tapered design makes Timken the only roller bearing you can be sure will cure the hot box problem and reduce operating and maintenance costs to the lowest possible point. The taper in Timken bearings prevents lateral movement. There's no pumping action—less lubricant is required. There's no scuffing or skewing—bearings last longer.

And to be sure of the quality of Timken bearings from melt shop to final bearing inspection, we make our own steel. We're America's only bearing manufacturer that does.

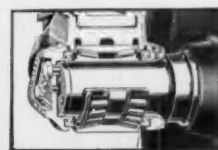
PRACTICAL CONVERSION PLAN USED

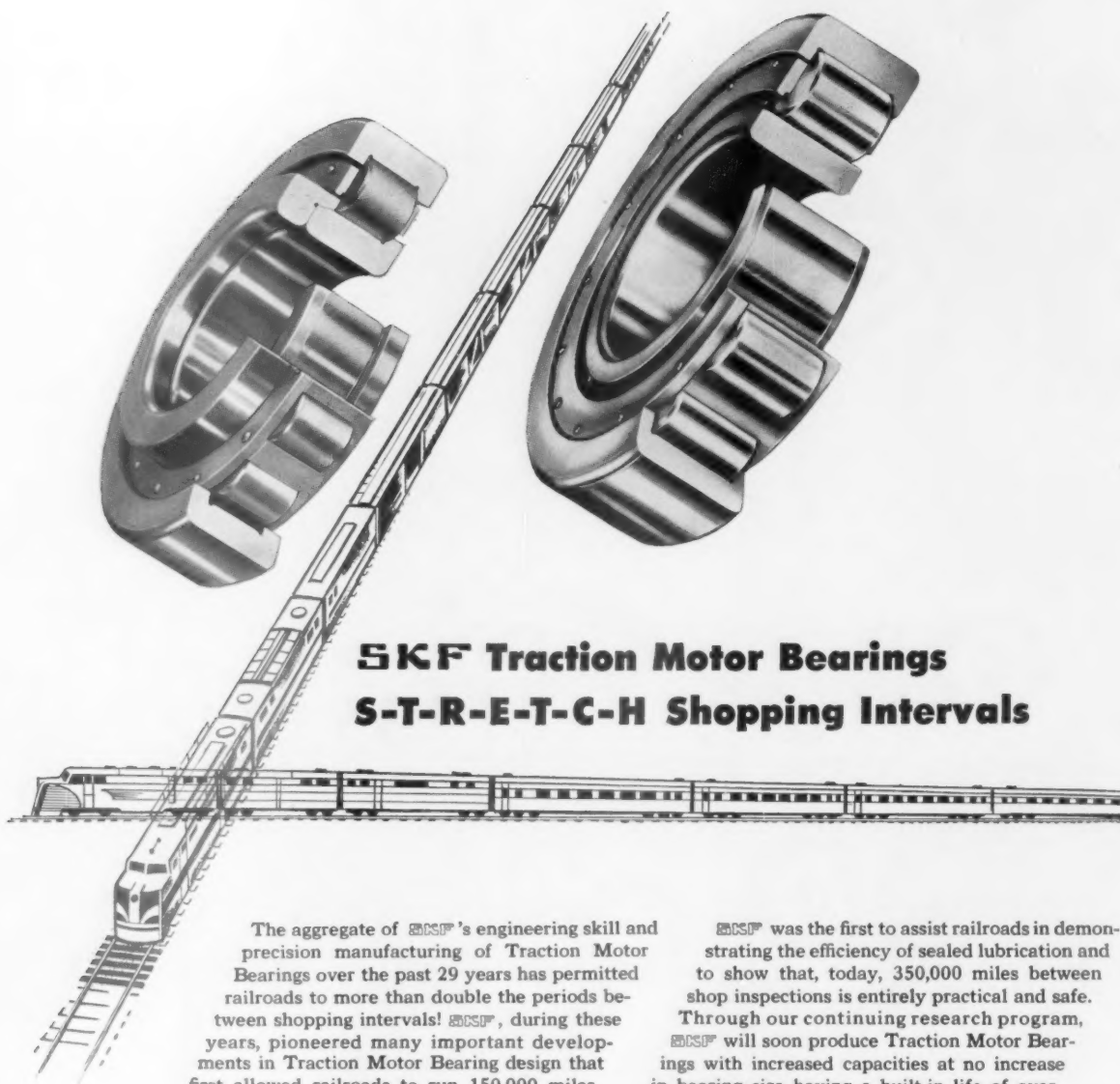
Figuring in the extra cost of buying and maintaining "crutch" devices that don't cure,

it's easily seen that the difference in price between friction and roller bearings is smaller today than ever. And now a program adopted by one major American railroad promises an even greater reduction. This railroad has put into effect a practical program for converting to "Roller Freight". It works like this. Every freight car coming into the shops for major repairs is converted to roller bearings. This simple, workable plan 1) facilitates a steady shop and labor schedule, keeping installation costs to a minimum, 2) allows the railroad to absorb the cost for its conversion to roller bearings over a period of years.

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Only **TIMKEN®** bearings cure the hot box problem and cut operating and maintenance costs to a minimum





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Mayari R makes it lighter...stronger...longer lasting



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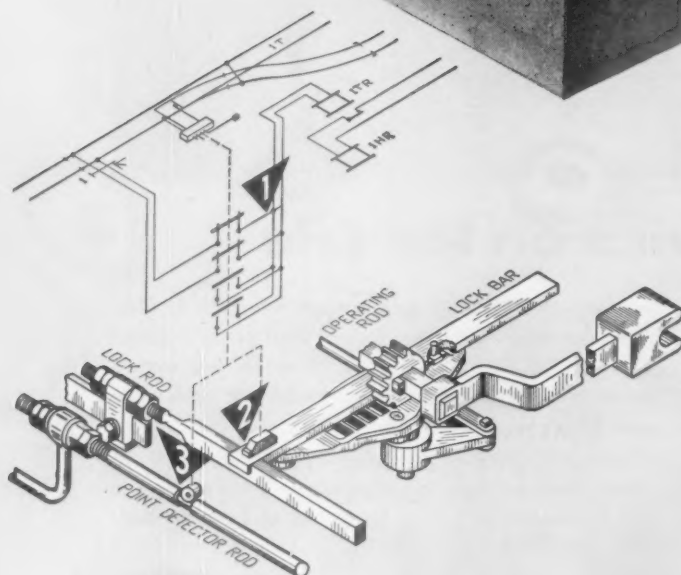
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2 The mechanism is in the normal locked position, with the lock bar engaged in the lock rod notch, and . . .

3 The switch points are properly positioned, as continuously checked by the point detector rod.



*UNION T-20 and T-21 Switch Stands are identical, except that the latter includes a built-in target drive assembly. Both are equipped with built-in circuit controller and normal point detector as shown on the right.



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Workbook of the Railways

Vol. 140, No. 8
February 20, 1956

CONTENTS and Week at a Glance

Net income of Class I railroads last year is estimated at \$917 million, an increase of \$240 million over the \$677 million reported for 1954. Net railway operating income, before interest and rentals, was \$1,128,115,275, up \$254,097,381 above the 1954 figure of \$874,017,894. December 1955 net income is estimated to be \$87 million, compared with \$115 million in December 1954. . . . p. 7

"Best passenger safety mark since the record-breaking year of 1952" was established by railroads in 1955, William T. Faricy, AAR president, reports. Last year's passenger fatality rate was 0.06 per 100 million passenger-miles. The 1954 rate was 0.07, the 1952 all-time record, 0.04. . . . p. 15

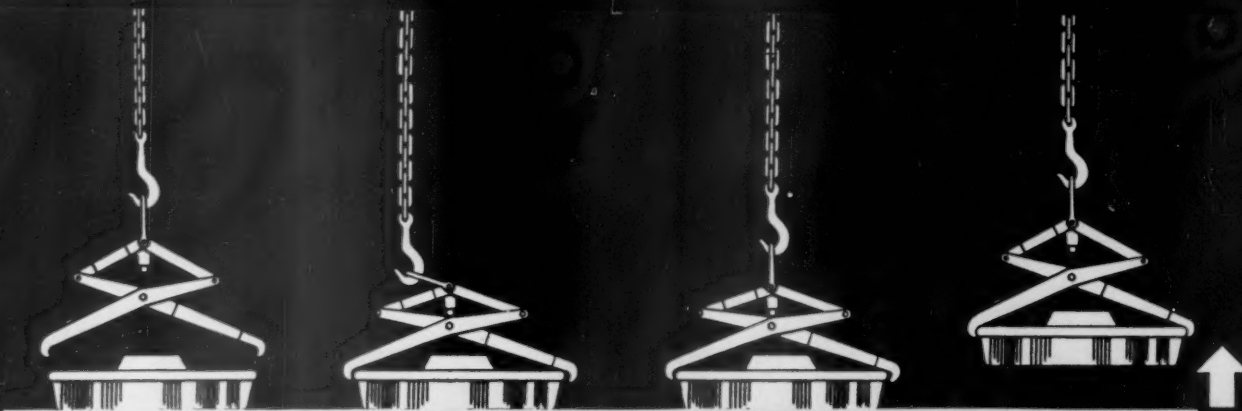
FORUM: Giving the "Weeks Report" "who-done-it" interest is a proper and legitimate way of conveying information vital to the railroads in a form palatable to the public. However much it may be in the public interest to effectuate the report's recommendations, it is nonetheless much more difficult to "sell" abstract ideas than concrete cases. . . . p. 21

SP pipeline is working now between Los Angeles and El Paso. This \$35-million facility, in general parallel to the railroad's main line tracks, fits in with its rail, highway, and "piggyback" operations to afford an all-around land transportation service in its territory. . . . p. 22

Gas turbine hauls local trains in Sweden, but uses comparatively little fuel, because it is hooked up with a diesel which serves as a gas producer under load and takes over the idling range entirely. . . . p. 24

We must have "super-railroads," says the Rock Island's John W. Barriger, if this industry is to keep ahead of competing forms of transportation. An expenditure of around \$20 billion in a 7-year period will be needed, he explains, to bring this about. . . . p. 25

Diesel housekeeping must improve, warns the ICC locomotive inspection report for the year ended last June 30. For the



Automatic 3-lever tong designed for handling individual car wheels affords 3-point contact

- 1 Tong, automatically locked open after the previous lift, is lowered over the wheel
- 2 Craneman gives slack to release automatic mechanism, unlocking tong for gripping
- 3 As craneman starts his lift, the tong closes in for a tight grip on the car wheel
- 4 Tong safely carries the wheel, will not let go until the wheel is delivered to its destination

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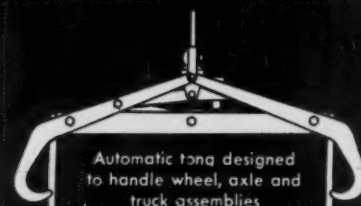
Whatever your particular handling jobs require—regardless of shapes, weights or sizes—Heppenstall tongs, engineered specially to your individual needs, will help you economically speed the handling of heavy rail, wheel, truck and axle components with greater efficiency and safety.

For complete information and technical assistance, contact Heppenstall Company, New Brighton, Pa. Sales offices and representatives are located in principal industrial centers.

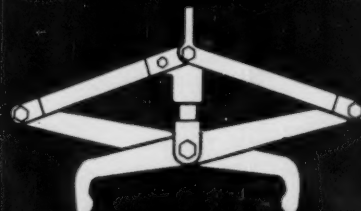


Heppenstall

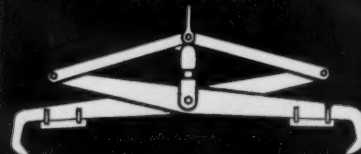
... tongs for every railroad lifting problem



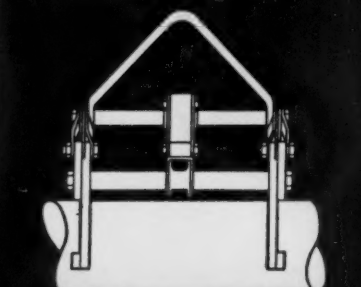
Automatic tong designed to handle wheel, axle and truck assemblies



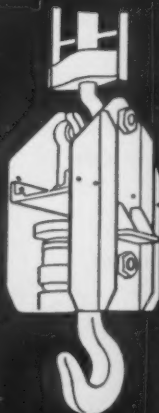
General purpose single tong with serrated grip shoes for plate, wheels, structurals and related items



Automatic tong for handling wheel and axle assemblies



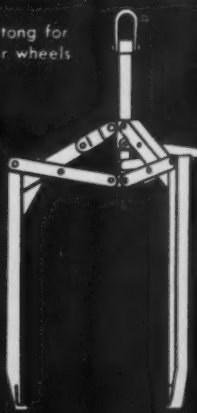
Automatic tong designed for handling axles



New motorized (360° rotation) crane hook for use with existing crane blocks and hooks

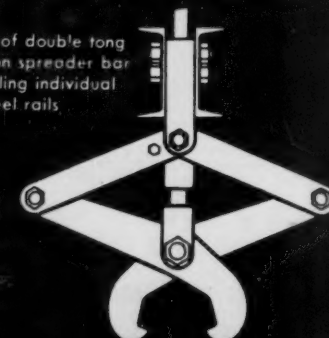


Automatic 3-legged tong for handling stacks of car wheels



Single tong for handling individual steel rails

End view of double tong mounted on spreader bar for handling individual steel rails



RAILWAY AGE

Current Statistics

Operating revenues, twelve months	
1955	\$10,106,398,133
1954	9,370,825,498
Operating expenses, twelve months	
1955	\$ 7,646,291,405
1954	7,384,499,680
Taxes, twelve months	
1955	\$ 1,080,504,965
1954	861,281,657
Net railway operating income, twelve months	
1955	\$ 1,128,115,275
1954	874,017,894
Net income, estimated, twelve months	
1955	\$ 917,000,000
1954	677,000,000
Average price 20 railroad stocks	
February 14, 1956	95.12
February 15, 1955	88.98
Carloadings revenue freight	
Five weeks, 1956	3,393,762
Five weeks, 1955	3,140,431
Average daily freight car surplus	
Wk. ended Feb. 11, 1956	5,194
Wk. ended Feb. 12, 1955	47,998
Average daily freight car shortage	
Wk. ended Feb. 11, 1956	3,009
Wk. ended Feb. 12, 1955	672
Freight cars on order	
January 1, 1956	147,320
January 1, 1955	15,317
Freight cars delivered	
Twelve months, 1955	36,896
Twelve months, 1954	35,558
Average number of railroad employees	
Mid-December 1955	1,070,964
Mid-December 1954	1,029,191

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Week at a Glance CONTINUED

first time since such surveys have been compiled, a year had no steam locomotive boiler explosion. . . . p. 28

Rail transit network is proposed for the San Francisco Bay area, where a commission study has come up with the conclusion that facilities for autos alone cannot meet the anticipated need for mass transportation in that region. . . . p. 29

Are car records too costly today? Yes, says Accountant Howard D. Murphy, and he comes up with some significant ideas to alleviate the situation. . . . p. 30

COMING—Next week: The first article in a *Railway Age* series on the theme: "The better supervisors get promoted."

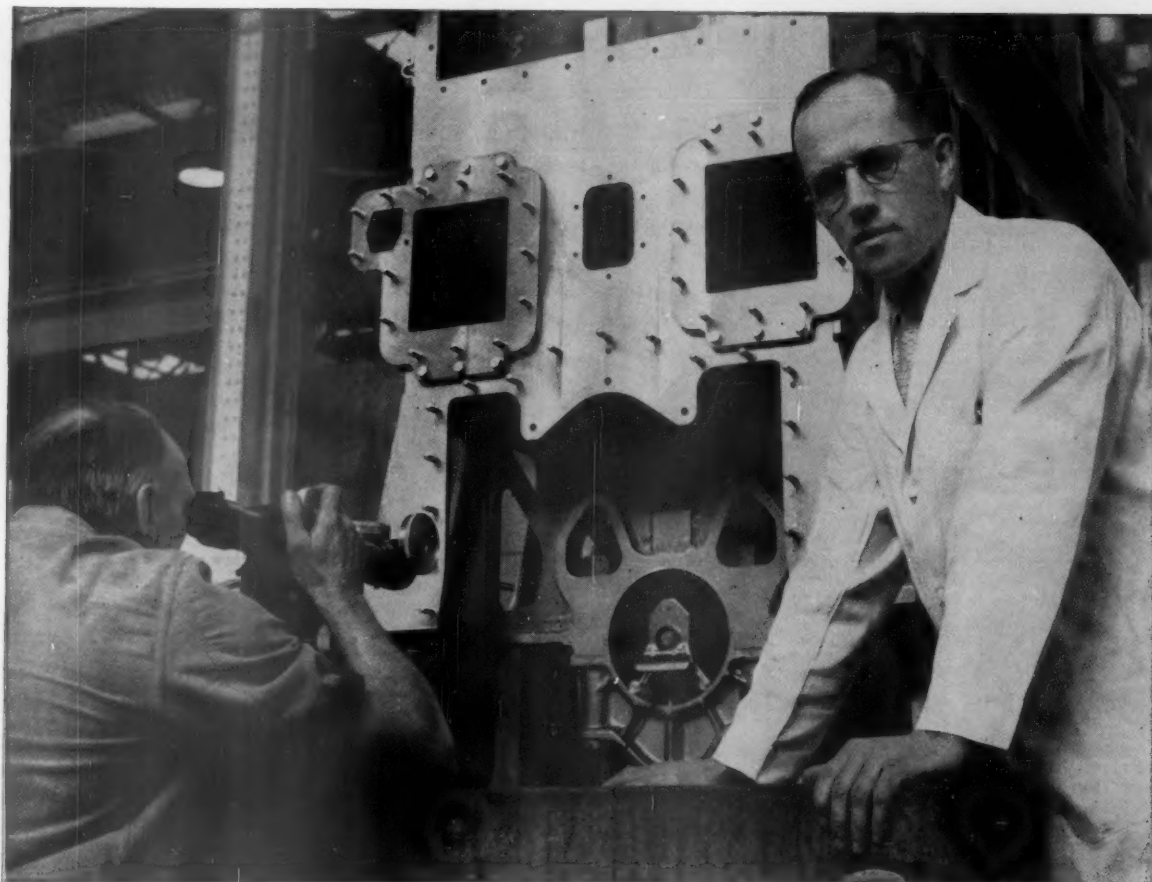
BRIEFS

The Budd Company is working on a new development in the lightweight passenger car field. The company will not divulge any details until tests have proved every feature of the new design, but it is known to be different from equipment now being built at Red Lion, which includes a "Tubular" train for the Pennsylvania, a "Hot Rod" (modified RDC) for the New Haven, "Hi-Level" cars for the Santa Fe, and new "Denver Zephyrs" with Siesta coach units, for the Burlington.

Railroads are arguing at the ICC this week in support of their plan to make the proposed freight rate increase of 7% effective the 25th. This is the Ex Parte 196 proposal, and the argument follows hearings held last week for the purpose of cross-examining some of the numerous witnesses who submitted evidence in the form of verified statements.

Intercity truck traffic, as measured by tons transported, appears to have been about 14% greater in 1955 than in 1954. This was indicated by unadjusted figures issued by American Trucking Associations after a special survey covering 350 operators, or about one-third of the Class I intercity common carriers of general freight. The 350 hauled 56.5 million tons in 1955 as compared with 49.7 million tons in 1954.

A new tariff-filing rule is being proposed by the ICC. It would stipulate that tariffs would be received "only during established business hours of the commission," which means that Saturdays, Sundays and national holidays would be out. Interested parties have until April 6 to file their views in the proceeding (Ex Parte No. 199) instituted by the commission for the purpose of receiving them.



The importance of a gnat's eyebrow at Fairbanks-Morse . . . *By our Mr. Drager*

Any variation over $\frac{2}{1000}$ of an inch—a gnat's eyebrow to the average man—throws this inspector into a veritable lather. He is using one of the newest and most modern methods of checking alignment of the main journal bearing saddles that are an integral part of the Fairbanks-Morse Opposed-Piston block.

Precision inspection

On this test, the engine block sits on a 20-ton granite plate—one of the largest in the world—that is remarkable due to the true flatness of its surface.

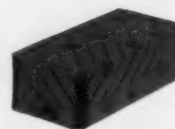
The instrument this inspector is using is

a precision optical device called (this won't surprise you) a telescopic alignment gauge.

Quality workmanship

But at Fairbanks-Morse, quality improvement does not stop with facilities, technicians and inspectors. Our employees know that quality can't be inspected into a product—it must be built in from the start.

With this precision inspection and quality workmanship, Fairbanks-Morse carries on a tradition of manufacturing integrity—part by part. Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 5, Illinois



Be sure you get the Dividend of Quality—specify genuine Fairbanks-Morse replacement parts. They are identified by the orange carton—and the Fairbanks-Morse Seal of Quality.



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1955 Net Estimated at \$917 Million

Up \$240 million from previous year—Net railway operating income, at \$1,128,115,275, was up \$254 million

Class I railroads last year had an estimated net income, after interest and rentals, of \$917 million, up \$240 million from 1954's \$677 million.

The estimate is by the Bureau of Railway Economics, Association of American Railroads, which also reported that last year's net railway operating income, before interest and rentals, was \$1,128,115,275, an increase of \$254,097,381 above the 1954 figure of \$874,017,894.

December 1955 figures showed estimated net income for that month of \$87 million, compared with \$115 million in December 1954. Net railway operating income for last December was \$77,786,071, compared with \$108,001,793.

The 1955 rate of return averaged 4.21%, compared with 3.28% in 1954. Fifteen Class I roads failed to earn interest and rentals in 1955.

CLASS I RAILROADS—UNITED STATES TWELVE MONTHS ENDED DECEMBER 31			
	1955	1954	
Total operating revenues	\$10,106,398,133	\$9,370,825,498	
Total operating expenses	7,646,291,405	7,384,499,680	
Operating ratio—per cent ...	75.66	78.80	
Taxes	1,080,504,965	861,281,657	
Net railway operating income (Earnings before charges)	1,128,115,275	874,017,894	
Net income, after charges (estimated)	917,000,000	677,000,000	
MONTH OF DECEMBER			
	1955	1954	
Total operating revenues	\$858,250,594	\$797,355,244	
Total operating expenses	695,150,143	628,707,877	
Operating ratio—per cent ...	81.00	78.85	
Taxes	62,716,934	39,569,068	
Net railway operating income (Earnings before charges)	77,786,071	108,001,793	
Net income, after charges (estimated)	87,000,000	115,000,000	

Heineman May Get Hand In C&NW Management

As a result of "friendly" meetings, the possibility appeared last week that Ben W. Heineman might obtain representation on the Chicago & North Western board of directors without a proxy fight.

Spokesmen for the railroad said further meetings between Mr. Heineman and representatives of the C&NW board are "contemplated."

Mr. Heineman, chairman of the executive committee of the Minneapolis & St. Louis, heads a group seeking a voice in C&NW management. In a letter to the railroad, excerpted last week in *Railway Age* (page 14), Mr. Heineman revealed his group claims ownership or control of about 465,000 C&NW shares. The group has been negotiating for an additional 100,000 shares. Shares outstanding total 1,729,447.

Merger Study Still On — As meetings with Mr. Heineman were under way, the C&NW board announced plans in conjunction with the Milwaukee, for an immediate study of the physical condition of both roads. Such a study, the board said, is a requisite for "advancement of negotiations" on possible consolidation of the two roads.

The C&NW announcement said "substantial progress" has already been made in collection of data necessary for future negotiations. The roads have been studying merger possibilities since last October.

White Questions Tax Cuts In Reducing Trackage

Elimination of parallel trackage will not reduce a railroad's local property taxes, Delaware & Hudson President William White told the New York Society of Security Analysts at New York City recently.

He advised the group to discount claims of such savings, because governing bodies have established tax income needs and simply will increase assessments on remaining trackage when



PRR Manual Shortens Ticket Window Lines

Use of one book instead of an assortment of tariffs and other publications that would reach from floor almost to counter level has been acclaimed by ticket sellers and travelers alike at New York City's Pennsylvania Station. George Burrows, Jr., (above), uses the book to figure routing and fare for Pennsylvania customer, with minimum loss of time. The book, called "Ready Reference Selling Manual," is used only in the station, and, after

several months of use, is described as "one of the best darned things they ever had on this railroad." Despite its comparatively small size, the manual covers over 90% of the destinations for which ticket requests are received in New York City, and includes much information on special trains; excursion, family and commutation fares; and other subjects about which ticket sellers are frequently queried. Loose-leaf pages simplify changes.

railroads cut down from four tracks to two, or from two to one.

However, Mr. White commented, this did not mean savings might not be achieved in operating and maintenance expenses or in income taxes. But, he said, publicizing claimed tax savings is apt to work adversely because "the more you talk about it the shorter the period for that tax saving is going to be."

As to the condition of the D&H itself, Mr. White said plans are set to floodlight every yard on the road "because we have the cash to spend." The road also plans to sell "a few" diesel engines in addition to four recently disposed of because the D&H has acquired more than it needs.

"Financial Crisis" on NH Denied by Alpert

Countering a published report of "financial crisis" on the New Haven, George Alpert, newly elected president, has denounced what he calls "attempts to read into the situation conclusions not warranted by facts."

Acknowledging some financial "problems" as well as "serious operational, maintenance and equipment" difficulties, Mr. Alpert said the New Haven is "in sound financial condition" and "is a safe road." He added "there is no foundation for the statement that the New Haven faces a financial crisis."

A newspaper report February 14 said the New Haven "has been dealing in its own securities . . . shows a \$2,900,000 loss on the transactions" and faces investigation of the situation



Lesson in Finance

Thomas M. Goodfellow, Long Island president, explains to two Eagle Scouts some methods by which the road's rehabilitation program is being financed. The scouts, recent guests of the railroad for an entire day—as part of national observance of Boy Scout Week—met the board of directors, visited shops, dispatchers, various operating officers, and finished their tour with a ride in the cab of a diesel locomotive.

NO SHORTAGE—BUT A GOOD MAN'S HARD TO FIND

Any railroad manpower shortages for night yard operations are isolated, exception-to-the-rule instances, a *Railway Age* survey shows.

Checking on reports that indicated a scarcity of third-trick yard labor might be developing, this paper queried 25 roads throughout the country, which might first feel the pinch of such a situation.

Only six roads reported any difficulties at all.

One said its shortages are not "disproportionate," and three eastern roads said their biggest problem is in getting competent help, although they also face the problem of getting

enough men regardless of caliber.

Two midwestern roads reported "widespread" and "extreme" difficulties. One said it had achieved "little success" in an "intensive advertising" campaign to recruit night yard forces; the other said it had found "no panacea."

"Loan-outs" of employees from divisions where work is scarce to those where business is heavier; recruitment programs; training courses for yardmen; and efficient use of cut-off employees were reported by some roads as ways they use to maintain adequate forces and make up temporary or seasonal shortages.

by the Interstate Commerce Commission. The commission has been making informal inquiries into the NH's financial activities, particularly the pur-

chase of NH securities from a group headed by the Union Securities Corporation. (*Railway Age*, November 21, 1955, page 5).

Operations

C&NW, AT&SF Expand Piggyback Operations

The Southwest is the latest area to be incorporated in the Chicago & North Western's expanding interline piggyback network.

Last week, the C&NW began offering through piggyback freight service between its principal stations and more than 110 cities in the Southwest. The new interchange arrangements are with the Cotton Belt, Frisco, Santa Fe, Katy, and Southern Pacific. This is the North Western's second major expansion of piggyback service within recent months. Last December 12, interchange arrangements with ten eastern lines linked some 50 C&NW stations with more than 800 Eastern cities (*Railway Age*, October 24, 1955, page 11).

The new arrangement covers thousands of commodities and items, with rates directly competitive with highway motor carriers. It will apply

between such C&NW points as St. Paul-Minneapolis; Green Bay, Wis.; Milwaukee, and Chicago and cities in Arkansas, Louisiana, Oklahoma and Texas.

Meanwhile, the Santa Fe announced last week it will begin interchanging trailer-laden flat cars with the Minneapolis & St. Louis at Nemo, Ill., and also southbound piggyback traffic at Kansas City with the Wabash and the Burlington. Second-morning delivery will be provided to Tulsa and Oklahoma City, and Dallas and Fort Worth. Third-morning delivery is scheduled for Houston and Galveston, and fourth-morning delivery for El Paso.

The Santa Fe also will interchange piggyback traffic at Dallas and Fort Worth with the Southern Pacific for Texas points, under the new arrangement.

B&M to Offer Piggyback Service

Another entry into the ranks of railroads offering piggyback service was made last week when the Boston & Maine announced purchase of 50 special flat cars. (See *Railway Market* column, page 9.)

Because delivery of the cars is not expected before the end of the summer, it is not certain when the B&M will inaugurate its service. A spokesman for the road said arrangements for a start by means of leasing or some other plan prior to delivery of the new cars, might possibly be worked out.

B&M's piggyback is scheduled to link New England points, including

Boston, with Buffalo, Cleveland, Chicago, St. Louis and other midwestern cities. Connections with the Delaware & Hudson, Erie, Lackawanna, Lehigh Valley, Nickel Plate and Wabash are contemplated.

NYC Starts Speedy Boston-Chicago Service

The New York Central has inaugurated second-morning-delivery freight service between Boston and Chicago, with third-morning delivery at East St. Louis.

The service, first of its kind offered

by the Central in the Boston area, calls for departure from Boston at midnight, with the East St. Louis section being cut off at Cleveland.

Rates & Fares

Ladies Like PRR Excursion Tickets

Reduced-fare "Ladies' Day" travel on the Pennsylvania from New Jersey points to New York City has proved so popular it may be extended beyond the scheduled March 28 termination date.

New York Region Passenger Manager John B. Dorrance, Jr., said more than 10,000 women used the tickets on the four Wednesdays in January when the plan was inaugurated, with passengers increasing each week. An additional 1,000 women from the Philadelphia-Trenton area have been coming in each Wednesday, he said.

Half-rate round trip tickets are offered in the plan, good on post-commuter rush trains into New York and on homeward trains late enough to permit theater-going, Mr. Dorrance said.

Liability Limit Rules Will Get Public Hearing

The Interstate Commerce Commission has assigned the general release-rate rules proposed by the railroads and truckers for public hearings beginning in Washington, D.C., April 24.

The rules propose to limit carrier liability generally to \$3 per pound on articles in the classification, and to levy additional charges where declared values exceed that figure. The railroad case (Ex Parte 197) and the truck case (Ex Parte MC-49) have been consolidated by the commission so both will be involved in the hearings, which will be conducted by Examiner John A. Russell.

The opening session at Washington will be followed by others at Atlanta, Ga., May 8 and 9, Dallas, Texas, May 15 and 16, Los Angeles, Calif., May 21-23, and Chicago, June 19-22.

Simpson Expects ICC to Trim 7% Rate Hike Plea

Nobody expects the Interstate Commerce Commission to grant the railroads' request for a 7% increase in freight rates "without some hold-downs," Baltimore & Ohio President Howard E. Simpson told the New York Society of Security Analysts February 10.

The commission might reduce the requested increase to about 6%, he said, but in any event could be ex-

RAILWAY

MARKET *Outlook* THIS WEEK

Overseas

► **U.S. Firm to Study India's RRs.**—Sanderson & Porter, New York engineering firm, has contracted with government of India to study that nation's railroad system to the end of recommending procedures to increase carrying capacity and make maximum use of facilities; 18-man team of engineers will visit India to study existing and future problems of coping with rapidly expanding traffic load.

New Equipment

FREIGHT CARS

► **Repair Ratio Down.**—Class I roads had a 2.5% smaller portion of their total car ownership awaiting repairs last January 1 than on January 1, 1955, the AAR reports—its figures reflect the ICC reclassification of railroads; total ownership was down 41,456; because of a printer's error, the change in number of cars awaiting repairs on December 1, 1955, compared with December 1, 1954, was reported incorrectly in this column February 6; correct figure is 44,842 (d); summary of January 1 AAR report follows:

	Jan. 1, 1956	Jan. 1, 1955	Change
Ownership*	1,694,097	1,735,553	41,456(d)
Waiting Repairs	71,381	116,200	44,819(d)
Repair Ratio	4.2%	6.7%	2.5%(d)

* Excluding railroad-owned private refrigerator cars.

► **Baltimore & Ohio.**—Ordered 200 70-ton covered hopper cars, Pullman-Standard; approximate cost \$1,700,000; delivery to start next November.

► **Boston & Maine.**—Ordered 50 special flat cars from Piggy-Back, Inc., for new piggyback operation; Pullman-Standard is builder; delivery late summer. (See page 8 for announcement of B&M piggyback plans.)

► **North American Car Corp.**—Ordered 25 70-ton covered hopper cars, Pullman-Standard; approximate unit cost \$8,100; delivery expected next December.

► **Northern Pacific.**—Ordered 14 covered hopper "Airsline" cars, General American; estimated unit cost \$12,515; delivery expected in March.

PASSENGER CARS

► **Canadian Pacific.**—Ordered 10 rail diesel cars, Budd Company; included are seven RDC-2s, two RDC-4s, and one RDC-3.

► **Rock Island.**—Ordered two rail diesel cars (RDC-3), Budd Company; approximate cost \$170,000 each; delivery expected next May.

LOCOMOTIVES

► **Diesel Ownership Up.**—Class I railroads owned 1,167 more diesel-electric units on January 1 than on same day last year, the

RAILWAYS IN THE MARKET—THIS WEEK

CONTINUED

AAR reports (figures take into account ICC's recent reclassification of railroads); ownership of steam locomotives declined in same period by 2,497; electric units owned dropped by 22; (increase in diesel ownership as of December 1, 1955, compared with December 1, 1954, was reported incorrectly in this column February 6; correct figure is 1,079; number of electric units owned or leased December 1, 1954, also given incorrectly, should have been 659, making decrease for the period nine units); summary of January 1 report follows:

	January 1		Stored Serviceable		Waiting Repairs	
	1956	1955	January 1		January 1	
	Owned or Leased		1956	1955	1956	1955
Diesel (units)	24,924	23,757	26	93	846	689
Steam (locomotives)	5,946	8,443	707	2,350	997	1,227
Electric (units)	634	656	12	8	70	56

SPECIAL

► **Greek RR Wants Various Equipment.**—The Piraeus-Athens-Peloponnesus Railway invites bids for locomotives (diesel or steam), passenger cars, freight cars, track materials and other equipment, according to Foreign Commerce Weekly; copies of bid announcement and specifications may be borrowed from Commercial Intelligence Division, Bureau of Foreign Commerce, Washington 25, D. C.

► **Santa Fe.**—Ordered two business cars, Budd Company; delivery expected first quarter 1957.

New Facilities

► **Baltimore & Ohio.**—Huge modernization project costing estimated \$10,000,000 expected to begin this year at Cumberland, Md., yard; anticipates \$934,000 annual saving through revamp of Connelville, Pa., facility, which cost \$1,600,000.

► **Northern Pacific.**—Will spend \$790,000 expanding diesel maintenance facilities at Livingston, Mont., including new diesel locomotive shop for running maintenance and inspection, diesel fueling facilities, sand towers, and locomotive washing platform.

► **Pennsylvania.**—Installing two sets of moving stairs in North Philadelphia Station; to be in service by mid-year; also constructing modernistic \$2,000,000 ticket office in New York's Pennsylvania station; for additional details see page 15.

pected to act on the proposed rates "promptly." He noted that, even with prompt ICC action, the new rates would cover only the last 10 months of 1956, while "increased costs will be in effect for the entire year."

Mr. Simpson said the B&O anticipates an increase of about 5% in freight revenues this year, most of which would come in the first half.

He added that B&O has found piggyback a successful operation with not a month going by without some new service being added. The road now handles 500 piggyback cars a month, 50% of which is new business, he said.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended February 11 totaled 684,328 cars, the Association of American Railroads announced February 16. This was an increase of 3,339 cars, or 0.5%, compared with the previous week; an increase of 45,540 cars, or 7.1%, compared with the corresponding week last year; and an increase of 60,622 cars, or 9.7%, compared with the equivalent 1954 week.

Loadings of revenue freight for the week ended February 4 totaled 680,989 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS			
For the week ended Saturday, February 4			
District	1955	1954	1953
Eastern	120,073	107,941	110,328
Allegheny	139,071	114,557	120,942
Poconchos	58,694	49,861	44,504
Southern	129,557	126,605	120,003
Northwestern ..	71,263	72,423	69,382
Central Western	109,751	109,230	103,407
Southwestern ..	52,580	55,162	55,819
Total Western Districts	233,594	236,815	228,608
Total All Roads	680,989	635,779	624,385
Commodities:			
Grain and grain products	44,286	44,629	43,836
Livestock	7,146	7,310	6,172
Coal	142,789	124,475	113,465
Coke	13,733	10,115	9,305
Forest Products ..	43,207	43,869	40,456
Ore	17,810	12,138	16,307
Merchandise l.c.l.	59,788	60,677	64,782
Miscellaneous ..	352,230	332,566	329,862
February 4	680,989	635,779	624,385
January 28	691,850	637,116	628,193
January 21	699,286	630,351	617,213
January 14	710,338	639,833	619,871
January 7	611,299	597,352	624,229
Cumulative total, 5 weeks	3,393,762	3,140,431	3,113,891

In Canada.—Carloadings for the ten-day period ended January 31 totaled 106,792 cars, compared with 75,711 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
January 31, 1956	106,792	49,971
January 31, 1955	87,760	42,585
Cumulative Totals:		
January 31, 1956	318,615	145,833
January 31, 1955	285,668	129,533

People in the News

Murphy and Minor Take Oaths as ICC Members

Two new members of the Interstate Commerce Commission — Rupert L. Murphy and Robert W. Minor—took their oaths of office at a special ceremony at the commission's Washington, D. C., headquarters February 15.

The appointments of Messrs. Murphy and Minor by President Eisenhower were confirmed recently by the Senate (*Railway Age*, February 6, page 10). The induction of Commissioner Minor brought the commission to its full strength of 11 members. Commissioner Murphy has been on duty since the first of the year, having got a recess appointment before Congress convened.

The oaths were administered by Justice Burton of the United States Supreme Court, and the ceremony included brief talks by representatives of the various agencies of transportation, including Robert S. Henry, vice-president of the Association of American Railroads, and J. M. Hood, president of the American Short Line Railroad Association.

The Association of Interstate Commerce Commission Practitioners was represented by its president, John R. Mahoney, while Commission Chairman Anthony F. Arpaia, who presided, read a message from L. J. Door, executive secretary of the National Industrial Traffic League, who was unable to attend because of a prior commitment.

In welcoming the new commissioners, Chairman Arpaia noted that Commissioner Minor is the youngest member ever to serve on the commission. He is 36, a few months younger than was the late commissioner Joseph B. Eastman at the time of his appointment.

Law & Regulation

Senate Group Will Hold Hearing on Per Diem Bill

A subcommittee of the Senate Committee on Interstate and Foreign Commerce will hold hearings March 20 and 21 on the bill S. 2770, which would authorize the Interstate Commerce Commission to impose penalty per diem charges to expedite freight car movements.

The committee's chairman, Senator Magnuson, Democrat of Washington, introduced the bill at the request of the Interstate Commerce Commission, which also recommended such legislation in its annual report. Mr. Magnuson is also chairman of the subcommittee which will hold the hearing.

Public Relations

M&StL Issues Employee Publication

The Minneapolis & St. Louis joined the ranks of roads publishing employee newspapers and magazines with distribution of volume one, number one of "The exPRESS" last month. Published by the M&StL public relations department, the four-page paper featured a reproduction of a letter from John W. Devins, president of the road, introducing it to M&StL employees.

American University Plans Tenth Railroad Institute

The Tenth Rail Institute of the American University, Washington, D.C., will be held there from March 6 through March 29. Its director will be John E. McGrath, professor of transportation at the university.

Organized along lines of its predecessors,

the institute will feature 29 seminars dealing with problems facing the railroads, five seminars on technical developments in rail transportation and five on current problems of other modes of transportation. Speakers at two dinner meetings will be Commissioner J. M. Johnson of the Interstate Commerce Commission, and Dr. J. H. Parmelee, consulting economist, Association of American Railroads.

Tuition for the course is \$135. Cost of textbooks and special meetings and field trips is estimated at about \$18.50.

C&O Survey Reports Better 'Phone Use

A two-year program of educating employees in proper use of the telephone for business purposes is paying off for the Chesapeake & Ohio.

Although the road's recent second annual survey of its telephone usage indicated some procedures need improvement, the survey report said "the general level of performance . . . was found to be good and definitely improved" over 1954.

In mid-1954 the C&O distributed to its employees a booklet called "You and the Telephone," which fixed standards for telephone use on the road. A survey to see how the standards were being applied was carried out in 1954 and repeated in 1955. The report on the latter survey was recently released. It was found, the report said, that an "unusual opportunity" for improvement now exists in the methods by which C&O personnel answering the

telephone identified themselves to callers.

PRR Yard Clerks Get Varied 9-Week Course

Subjects ranging from freight-loss-and-damage-prevention to freight car distribution are featured in nine-week courses being conducted for yard clerks in the Pennsylvania's New York region.

Leading sales-and-service and operating executives from system and regional offices will serve as instructors, according to Regional Manager Park M. Roeper. The courses, for personnel at Jersey City, N.J., Kearny and Newark, also cover demurrage, waybill handling, problems in handling livestock, perishable foodstuffs and explosives, yard operation, classification of trains and employee safety.

Competitive Transport

ICC Needs No More Advice About Contract Trucking

The Interstate Commerce Commission has discontinued the proceeding it instituted two years ago to get advice on whether it should recommend that Congress amend provisions of the Interstate Commerce Act which relate to contract trucking.

The proceeding was docketed as Ex



Railroad Financial Officers Meet in Chicago

The Advisory Committee, Treasury Division, Association of American Railroads, as it met recently at the Northern Trust Company, Chicago. Around the table, left to right, are the following railroad financial officers: W. A. Hall, Baltimore & Ohio Chicago Terminal; J. A. Quinn, Southern Pacific; W. J. Wall, vice-chairman, Treasury Division, AAR; P. D. Fox, Pennsylvania; A. B. Huttig, Illinois Central; J. F. Hagmann, Cincinnati, New Orleans & Texas Pacific; W. A. Coe, Louisville & Nashville; R. E. Keefer, secretary, Treasury Division, AAR; F. O. Linstead, Chicago & North Western, who is chairman of the Advisory

Committee and the Treasury Division; A. R. Seder, vice-president of the AAR's Financial, Accounting, Taxation and Valuation department; W. O. Colwell, Denver & Rio Grande Western; E. G. Wagner, Missouri Pacific; J. C. Cunningham, Lackawanna, and Birkett Howarth, Reading. Seated at back of room, in the usual order, are: H. S. Wood, Richmond, Fredericksburg & Potomac; W. D. Steele, Wabash; C. B. Campbell, Nickel Plate; E. L. Moorhouse, Pittsburgh & Lake Erie; E. G. Jerome, New York Central; W. J. Collins, Chicago & Western Indiana, and Philip Lyon, AAR Finance Division's assistant secretary.

Parte No. MC-46, and the discontinuing order noted that the commission had made recommendations on the pending bills (S.1920 and H.R.6141) to implement recommendations of President Eisenhower's Cabinet Committee on Transportation, which include proposals relating to contract trucking. Also, legislative recommendations in the commission's annual report called for tighter regulation of contract trucking. (*Railway Age*, January 2, page 7, and February 6, page 60.)

Organizations

Pan American Rail Congress Now Set for August 1957

The Ninth Pan American Railway Congress is now scheduled to be held at Buenos Aires, Argentina, in August 1957.

This was announced by William T. Faricy, chairman of the United States National Commission of the Pan American Railway Congress Association. The congress had previously been scheduled for April of this year.

Commission Chairman Faricy (who is also president of the Association of American Railroads) said that the August 1957 date will mark the Congress Association's fiftieth anniversary and the centennial of the opening of the first Argentine railroad.

Annual meeting of the Southern Region, **American Short Line Railroad Association**, will be held in New Orleans, February 23. The meeting will be held jointly with the **Southern Short Line Railroad Conference**.

VOLLMER SAYS WEEKS REPORT FOES BECLOUD REAL ISSUES

All of the rash and reckless attempts to smear by distortion and deception the work of the Cabinet Transport Committee are designed to becloud the real issue, which is to give all types of transportation the right to price their services in fair and open competition with one another.

The critics of the report now enjoy that competitive privilege, but they want to deny it to the railroads. In a nutshell, that is the real issue and the principal basis of their opposition to the report.—From an address by W. G. Vollmer, president, Texas & Pacific, before the Texas Editorial Association.

Henry K. Norton, chairman of the New York, Susquehanna & Western, will discuss "Aerial Transit—An Answer to the Commutation Problem?" at a meeting of the **New York Railroad Club** in the Hotel Commodore, at 8:15 p.m., February 23. Dinner, at 7 p.m., will precede the meeting.

The 32nd annual meeting of the **Pacific Coast Shippers Advisory Board** will be held March 15-16, at the Hacienda Motel, Fresno, Cal. Vernard C. Redman, San Joaquin manager, Pacific Gas & Electric Company, will speak at a luncheon on the 16th.

Newly elected officers of the **Milwaukee Traffic Club** are: President, G. C. Loeser, Jos. Schlitz Brewing Company; first vice-president, C. F. Dahnke, Milwaukee; second vice-president, D. G. Ploetz, Harnischfeger Corporation; third vice-president, Herman J. Jahnke, Motor Transport

Company; secretary and treasurer, W. K. Corner, Consolidated Forwarding Company.

John H. Hammond, superintendent of the Nickel Plate's Chicago terminal, has been elected chairman of the **Calumet Railroad Community Committee** for Gary-Hammond, Ind., and Howard Johnson, trainmaster, Indiana, Harbor Belt, has been elected vice-chairman.

Carl Tonneberger, general coal freight agent, Chesapeake & Ohio, has been elected chairman of the **Railroad Community Committee of Toledo**, succeeding Slade Freer, Jr., division freight agent, Baltimore & Ohio. Other officers named to serve during 1956 are: Charles A. Madigan, general agent, Nickel Plate, vice-chairman; George J. Bradner, general freight agent, Ann Arbor, secretary; Earl W. Beck, division freight sales manager, New York Central, chairman of the speaker's bureau.

Ernest R. Senn, assistant vice-president and freight traffic manager, Grace Line, Inc., has been elected chairman of the **Transportation Section, New York Board of Trade**. Arthur E. Baylis, vice-president, New York Central, has been elected vice-chairman.

John T. Farmer, foreign freight representative of the Union Pacific at Chicago, has been elected president of the **Railroad Foreign Freight Agents' Association**.

New officers of the **Michigan Railroad Club** are: President, Westbrook Rudduck; first vice-president, A. L. H. Darragh; second vice-president, Carl W. Brown; secretaries, Richard Glaze and Jack Goodrich; treasurer, Charles E. Stephens.

Newly elected officers of the **Railroad General Agents Association of Seattle** are: President, C. G. Alton, general agent, Southern Pacific; vice-president, L. M. Curtin, general agent, Nickel Plate; secretary-treasurer, Wallace Wiley, district freight agent, Canadian Pacific.

The forty-ninth annual dinner of the **Traffic Club of Washington, D.C.**, was held February 8 at the Statler Hotel in that city. Presiding was the club's president—John C. Batham, general agent of the Sante Fe. Oliver E. Schick, general freight and passenger agent, Missouri-Kansas-Texas, was chairman of the dinner committee.

New officers of the **Traffic Club of New Orleans** are: President, Franklin M. Schilling, American Creosote Works; first vice-president, Lewis I. Bourgeois, Port of New Orleans; second vice-president, Fred J. de Ben, Gordons Transports, Inc.; third vice-president, James B. Puig, Baltimore & Ohio; secretary, Rene J. Pigeon, E. P. Riva, Inc.; treasurer, William S. App, Maher-App & Co.

(More News on page 15)



Canadian Railway Club Holds Annual Dinner

More than 1,900 railroaders and members of associated industries were at the recent 48th annual dinner in Montreal of the Canadian Railway Club. Attending a reception held before the dinner are, left to right: George C. Marler, Canada's Minister of

Transport; Donald Gordon, president, Canadian National; L. B. George, assistant chief of motive power and rolling stock, Canadian Pacific, and president of the club; N. R. Crump, president, CPR; and E. S. Miller, president, Maine Central.

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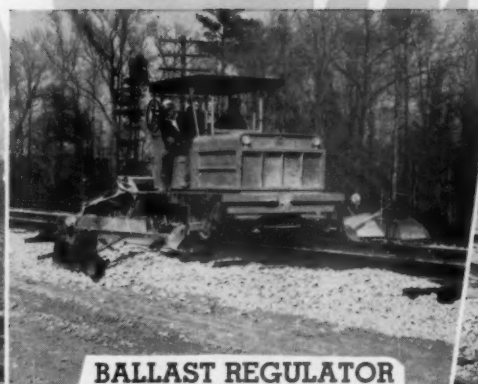


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MONTGOMERY, ALABAMA

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Passenger Traffic

Futuristic Ticket Office Going into Penn Station

A \$2,000,000 modernization of New York's Pennsylvania Station ticket office—designed to dovetail with possible future erection of an office building over the station—will be carried out this year.

It will feature the latest electronic and mechanical devices including a closed television circuit to speed reservation and ticket sales procedures, according to J. Benton Jones, PRR vice-president, passenger sales and service.

Mr. Jones said the time has come to apply experience gained in smaller scale installations at Pittsburgh and Philadelphia to the New York station, where the volume of ticket transactions is much greater.

The new office will be on the west side of the main waiting room. It will be oval in shape with an open Formica and stainless steel counter, eliminating existing cages and grills. Lighting and air conditioning will be provided from a luminous canopy suspended over the office.

Supply Trade

Rocco Canzoniero, Eastern operations manager, **Rail-Trailer Company**, has been appointed superintendent of transportation, and **Si Aramian**, assistant to manager of



ALLEN L. TILSLEY, whose appointment as assistant general manager, railroad sales, **Colorado Fuel & Iron Corp.**, was announced in *Railway Age*, January 23, was born in 1918 at Trenton, Neb. He attended the University of Denver and was graduated with a degree in business administration. Mr. Tilsley has been affiliated with the railroad sales department of Colorado Fuel & Iron Corp. since 1940.

operations, has been named superintendent of terminals. **Robert Westcott**, formerly of **Trailmobile, Inc.**, has been appointed superintendent of equipment and maintenance.

C. V. Blackburn has been appointed vice-president, sales, **Stran-Steel Corporation**, at Detroit, succeeding **J. E. Bowen**, resigned. Mr. Blackburn was formerly with **General Electric Company** as sales manager, consumer products, wiring device department.

Samuel Wessel, assistant vice-president, **Hyman-Michaels Company**, has been elected a vice-president.

Arthur J. Ryan, who recently retired as fuel purchasing agent of the New York Central, has become associated with **Consolidated Railway Equipment Company** as manager, domestic and international sales, at New York.

Griffin Wheel Company has announced it is proceeding with plans for constructing and equipping a plant

in southern California. The new plant, which will manufacture E Q S cast steel wheels for railroad cars, is expected to be ready for operation in about one year.

OBITUARY

Dr. Henry Phelps Gage, 69, whose work on signal colors for American railroads was instrumental in adoption of a nationwide color standard by the Railway Signal Association, died February 9 at Corning, N.Y. He retired from active service with Corning, Glass Works in 1951.

George F. Holly, Sr., 73, retired manager of conduit sales, Youngstown Sheet & Tube Co., died January 31. **Edwin P. Corey**, 79, retired general manager of tubular sales, died January 29.

Clyde D. Jeffress, 64, staff assistant in the administrative division of Alco Products at Schenectady, N.Y., and formerly manager of the Richmond, Va., plant, died February 8.

1955 Second Best Passenger Safety Year

Railroads in 1955 "established their best passenger safety mark since the record-breaking year of 1952," President William T. Faricy of the AAR reported last week.

He put last year's passenger fatality rate at 0.06 per 100 million passenger-miles. The 1954 rate was 0.07, while

the 1952 rate, an all-time record, was 0.04.

Preliminary figures for November and December 1955 and last year's 12 months have been issued by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics, as set out in the accompanying tables.

Item	Month of 12 months ended December 1955 1954 1953 1952			
Number of train accidents*	822	665	8,717	7,497
Number of accidents resulting in casualties	65	41	510	461
Number of casualties in train, train-service and non-train accidents:				
Trespassers:				
Killed	65	48	822	818
Injured	51	66	796	895
Passengers on trains:				
(a) In train accidents*				
Killed .....	..	..	4	5
Injured	16	6	416	446
(b) In train-service accidents				
Killed	1	3	12	16
Injured	203	150	1,779	1,735
Travelers not on trains:				
Killed .....	..	1	4	5
Injured	85	100	847	842
Employees on duty:				
Killed	30	21	256	208
Injured	1,742	1,481	18,299	16,518
All other nontrespassers:†				
Killed	206	190	1,587	1,423
Injured	743	641	5,632	5,103
Total—all classes of persons:				
Killed	302	263	2,685	2,475
Injured	2,840	2,444	27,769	25,539

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of \$350 or more to railway property

† Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Persons:				
Killed	195	175	1,462	1,303
Injured	605	453	4,008	3,426

Item	Month of 11 months ended November 1955 1954 1953 1954			
Number of train accidents*	800	594	7,897	6,832
Number of accidents resulting in casualties	52	34	444	420
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	63	58	762	770
Injured	49	63	742	829
Passengers on trains:				
(a) In train accidents*				
Killed .....	..	1	4	5
Injured	2	43	398	440
(b) In train-service accidents				
Killed .....	..	1	11	13
Injured	131	111	1,573	1,585
Travelers not on trains:				
Killed .....	..	1	4	4
Injured	80	81	761	742
Employees on duty:				
Killed	26	14	226	187
Injured	1,645	1,348	16,554	15,037
All other nontrespassers:**				
Killed	225	100	1,382	1,233
Injured	615	436	4,894	4,462
Total—all classes of persons:				
Killed	314	175	2,389	2,212
Injured	2,522	2,082	24,922	23,095

In 1954. Beginning January 1, 1955, this minimum was raised to \$375. Only a minor part of the total accidents result in casualties to persons, as noted above.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Persons:				
Killed	219	94	1,281	1,128
Injured	504	313	3,425	2,973

Railway Officers

AKRON, CANTON & YOUNGSTOWN.—**James J. King**, traffic manager (rates), has been appointed assistant vice-president—rates and divisions, with headquarters, as before at Akron, Ohio. **William F. Henry** has been named traffic manager—rates and divisions. The position of assistant traffic manager—rates and divisions has been abolished.

ALBANY & NORTHERN.—**Eugene W. Able** has been appointed general agent at Albany, Ga.

ATLANTIC COAST LINE.—**G. H. Kendall**, general foreman at Jacksonville, Fla., has been appointed trainmaster, Waycross district, at Waycross, Ga. **G. Patterson** has been named trainmaster, Tampa district, at Lakeland, Fla.

BURLINGTON.—**Robert S. Brown**, division freight agent at Galesburg, Ill., has been transferred to Rock Island, Ill., succeeding **Arthur R. Brown**, retired. Mr. Brown's successor at Galesburg is **L. H. Petrie**, general agent at Indianapolis, who in turn has been replaced by **J. E. Kindt**, traveling freight agent at Cincinnati.

R. E. Kelly, diesel material supervisor, retired February 1.

CANADIAN PACIFIC.—**T. F. Donald**, assistant superintendent motive power at Winnipeg, has been promoted to superintendent of motive power and car department, Prairie and Pacific regions, at that point, succeeding **E. G. Bowie**, who retired January 31. **W. Stewart**, assistant superintendent of motive power and car department at Calgary, Alta., succeeds Mr. Donald as assistant superintendent motive power.

J. C. W. Parsons, agent at Port Arthur, Ont., has been appointed general agent, Fort William Terminal division, succeeding **E. Weighill**, retired.

CENTRAL OF GEORGIA.—**W. L. Kimsey, Jr.**, commercial agent at Detroit, has been appointed general agent at Philadelphia, succeeding **J. A. Rutledge**, appointed district freight agent at Athens, Ga., replacing **G. T. Beeland**, deceased.

Ira Dawson Hefner, Jr., has been appointed assistant engineer, engineering department, at Savannah, Ga.

CHESAPEAKE & OHIO.—**M. J. Hubbard**, general supervisor bridges and buildings, Southern region, has been named assistant chief engineer of that region, with headquarters as before at Richmond, Va.

CHICAGO GREAT WESTERN.—**L. R. Gardner** has been appointed special representative, operating department at Chicago.

FORT WORTH & DENVER.—**W. R. Pryor** has been named auditor of revenues, succeeding the late **H. A. Crittendon**.

MILWAUKEE.—**G. H. Rowley**, division superintendent at Madison, Wis., has retired after 46 years of service, and is replaced by **K. R. Schwartz**, who has been transferred from Marion, Iowa. **P. J. Weiland**, superintendent at Aberdeen, S.D., succeeds Mr. Schwartz and in turn has been succeeded by **F. H. Ryan**, assistant superintendent at Milwaukee. **F. E. Devlin** has been transferred from Savanna, Ill., to replace Mr. Ryan at Milwaukee. Mr. Devlin's successor is **J. J. Nentl**, assistant superintendent at Dubuque, Iowa, who has been replaced by **W. F. Plattenberger**, trainmaster Chicago Terminals. **W. O. Harnish**, trainmaster at St. Paul, has been named trainmaster Chicago Terminals, and **G. A. Chamberlain**, trainmaster Chicago Terminals, has been transferred to St. Paul.

W. E. Broberg, assistant valuation engineer, has been appointed auditor of capital expenditures at Chicago, replacing **J. H. Schnaitman**, who has become special representative of vice-president—operations.

C. J. Peck, passenger department

representative at Kansas City, has been appointed district passenger agent at Cedar Rapids, Iowa.

Edwin R. Eckersall has been appointed assistant general counsel at Chicago.

John M. Ellefson, supervisor signals and communications at Milwaukee, retires February 29.

NEW YORK CENTRAL.—**E. C. Cross**, assistant to general manager—labor relations, **Boston & Albany**, at Boston, has been appointed assistant superintendent there. **Walter Fisher** succeeds Mr. Cross as assistant to general manager—labor relations. **P. H. Myers** has been appointed trainmaster, Buffalo division, at Buffalo, N. Y. **Karl F. Miller** has been named superintendent of shop, Harmon diesel and electric shop, Harmon, N.Y.

V. T. Winings has been appointed district freight sales manager, NYC system, at Milwaukee, Wis., succeeding **J. F. Scanlin**, retired.

NICKEL PLATE.—**James B. Osborne**, general attorney at Cleveland, has been named general solicitor. **Clay Marsteller**, land and tax attorney, has been appointed general attorney.

PENNSYLVANIA.—**Walter L. Lloyd**, manager of coal and ore traffic sales and rates at Cleveland since November 1, 1955, has been appointed manager of coal research and development at Philadelphia, a new post. **Joseph H. Cairnes**, district freight sales manager at Columbus, Ohio, has been named assistant manager of coal traffic sales and rates at Philadelphia.

Fred C. Rottmann, chief draftsman, has been promoted to assistant engineer at Indianapolis.

QUANAH, ACME & PACIFIC.—**Gerald C. Hay** has been appointed general agent at Cleveland, Ohio.

SOUTHERN PACIFIC.—**E. J. Larson**, assistant freight traffic manager, rates and divisions, has been advanced to freight traffic manager, rates and divisions, succeeding **Harold** (Continued on page 33)



E. J. Larson



W. F. McGowan



M. P. Sayles



William D. Lamprecht

A little red lead makes it official—our name is now Monon Railroad—no longer the Chicago, Indianapolis and Louisville. It's about time, too. For years practically everybody has referred to the line as "The Monon", so now, we do, too. And the identification mark is changed from that confusing C. I. L. to MON—for Monon Railroad.

We hope you will remember the Monon as the easiest, most efficient way to ship. Every shipment, LCL or a trainload receives our best attention.

WE'RE GIVING THE PAST THE BRUSH-OFF...

So, remember, the Monon—dependable, courteous service—all up and down the line.



MONON RAILROAD

THE HOOSIER LINE



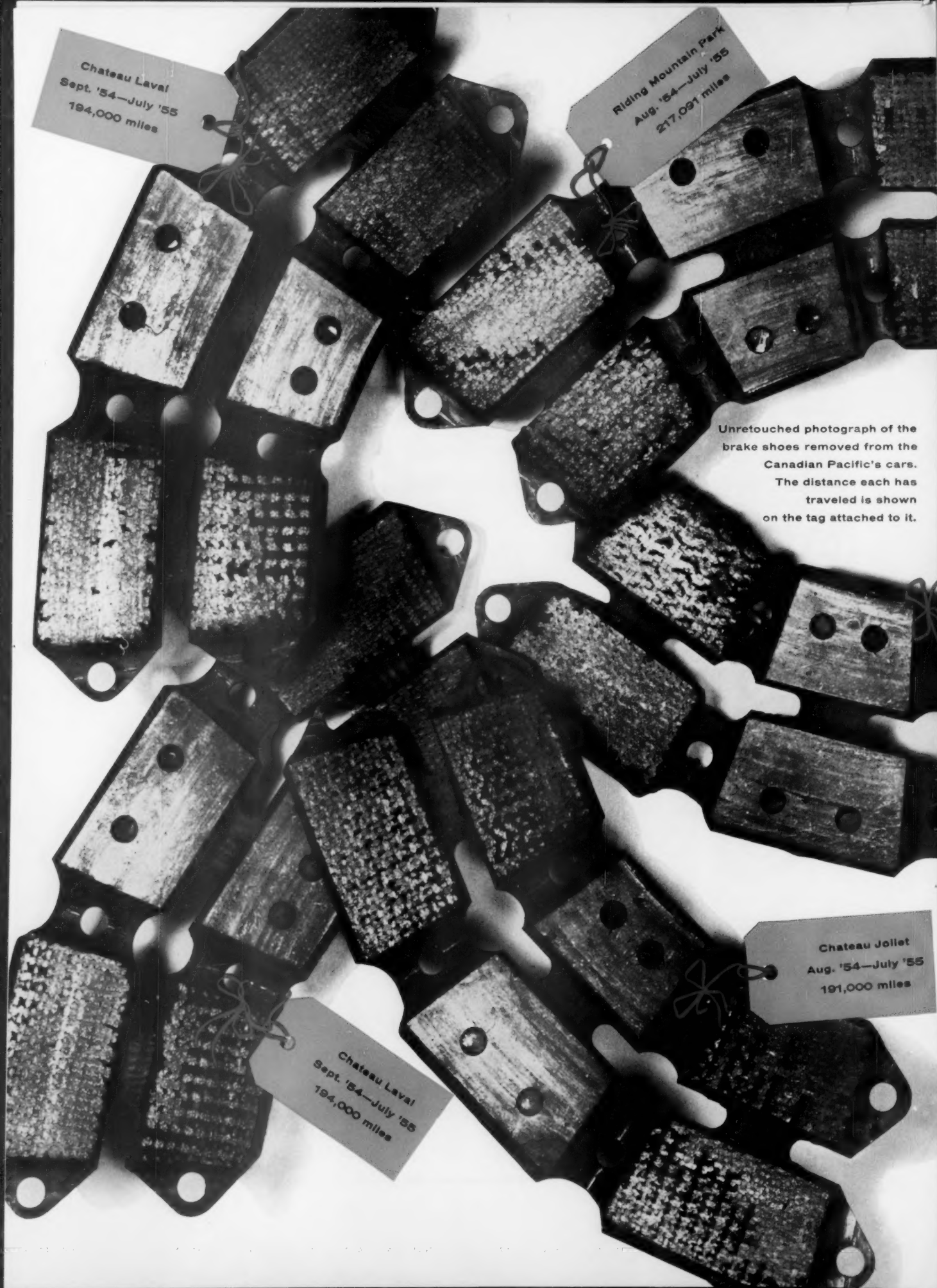
Chateau Laval
Sept. '54-July '55
194,000 miles

Riding Mountain Park
Aug. '54-July '55
217,091 miles

Unretouched photograph of the
brake shoes removed from the
Canadian Pacific's cars.
The distance each has
traveled is shown
on the tag attached to it.

Chateau Joliet
Aug. '54-July '55
191,000 miles

Chateau Laval
Sept. '54-July '55
194,000 miles



from 2900 miles
to ...

198,247

Revelstoke Park
Aug. '54—July '55
200,818 miles

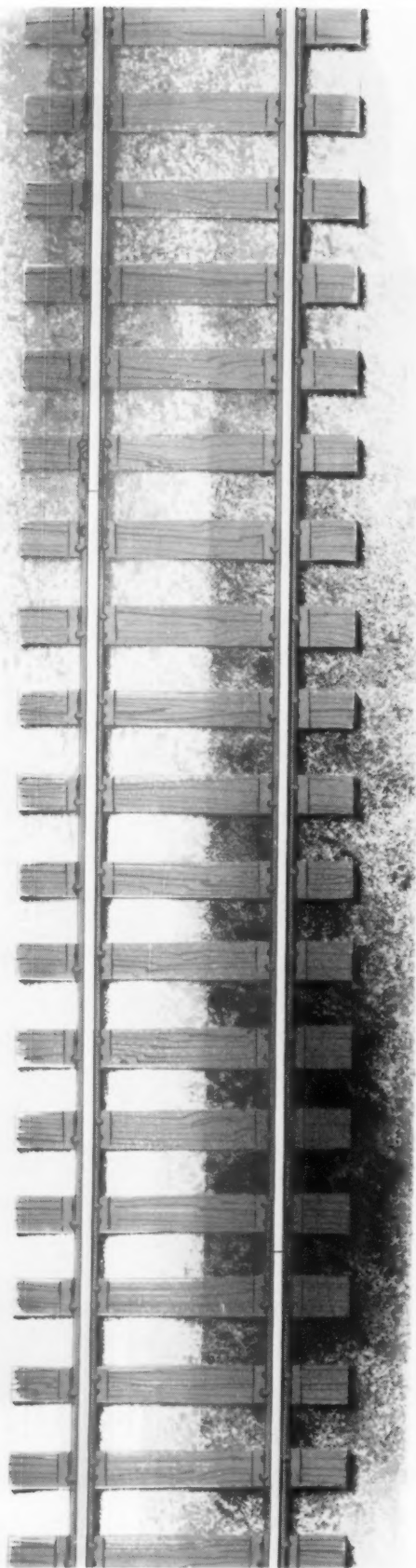
Before the Canadian Pacific began operating trains equipped with Budd railway passenger car disc brakes, standard practice was to change all the brake shoes at the end of each transcontinental run—2900 miles.

Following are examples of the brake shoe service and mileage life Canadian Pacific has obtained with Budd disc brakes.

Car from which removed	Dates of Service	Mileage
Riding Mountain Park	Aug. '54—July '55	217,091
Chateau Laval	Sept. '54—July '55	194,000
Chateau Laval	Sept. '54—July '55	194,000
Chateau Joliet	Aug. '54—July '55	191,000
Chateau Joliet	Aug. '54—July '55	191,000
Revelstoke Park	Aug. '54—July '55	200,818
Revelstoke Park	Aug. '54—July '55	200,818

average **198,247**

Budd



HOW TO PUT AMERICA'S MOTORISTS BACK ON THE LONG, STRAIGHT AND NARROW

Your single biggest competitor for passenger business today is the "between-city motorist." It's a fact! This year alone, he'll ride hundreds of *BILLIONS* of passenger miles—right off the tracks. Yet, alert railroad management has helped switch back millions of these miles with the Hertz-invented Rail-Auto Travel Plan.

You can help win back lost passengers with this tried and true plan by urging your colleagues to try it—sell themselves on its true, low-cost convenience.

You can urge ticket agents to repeat this profitable question:

"May I reserve a Hertz car for you at your destination?"
A bonus-incentive is paid them by Hertz—10% of total rental charges!

You can help Hertz promote rail-auto travel in your own advertising, and with free displays, signs and literature. Add to Hertz' tremendous national Rail-Auto Travel Plan promotion, you stand to gain!

You can join Hertz the leader—world's oldest and largest rent a car service—win new traffic with Hertz! And Hertz serves over 650 cities worldwide with thousands of sparkling, new Ford Fordomatics or other fine cars . . . honors millions of credit cards including your own! Interested? Call or write: Hertz Rent A Car System, Dept. D26, 218 So. Wabash Ave., Chicago 4, Ill.; phone: WEBster 9-5165. Ask for Hertz' Rail-Auto Travel Plan facts, forms and promotional material, today!

More people by far...use

HERTZ

Rent a car

Giving "Weeks Report" "Who-Done-It" Interest

A good deal of the current discussion about giving common carriers more rate-making freedom takes the form of abstract generalizations, which do not make very lively reading. Specific cases usually tell the story more interestingly—not unlike a detective story. Take this situation, for instance:

In 1946 the Union Pacific proposed to establish rates of 18, 21, and 22 cents per 100 lb to Pocatello, Idaho Falls, and Twin Falls, respectively, for groceries and grocer's supplies from Salt Lake City and Ogden. A wholesale grocer at Ogden was, aside from the railroad, the principal supporter of the proposed rates. He pointed out that, at the time, 60 per cent of his traffic to these Idaho destinations was being moved by a contract motor carrier—and that practically all the rest of it was being hauled in his own private trucks. In other words, practically none of this traffic was moving by rail. If the railroad would provide him with the rates proposed, he would shift all of this traffic to rail movement.

The proposed rates would certainly have been remunerative to the railroad. For example, they would have given the railroad an average revenue of 40.85 cents per car-mile and 2.04 cents per ton-mile—compared with average car-mile earnings for the railroad as a whole of 16.66 cents; and average ton-mile earnings of only 9.71 mills. That is to say, the proposed rates would have paid the railroad more than twice its average revenue per ton-mile and per car-mile.

Truck operators protested these proposed rates—being joined by some of the wholesaler's competitors and other Idaho interests, including the state utilities commission. So the ICC suspended the rates. The rates were supposed to go into effect on January 30, 1946. The ICC didn't make up its mind until October 10—almost nine months later—and its answer was: *No*.

The protesting interests in Idaho did not want a Utah competitor to get favorable freight rates into their territory. Such a feeling is understandable. On the other hand, these interests did not seem to take into account the fact that—if the railroad did not make these low rates for the Ogden wholesaler—the wholesaler was going to

continue to ship by contract and private truck anyhow, at a cost to him lower than prevailing railroad rates.

Looked at another way, a lot of people don't seem to care much if a business gets some transportation cost advantages by using its own or contract trucks. But they raise heaven and earth if the railroads—recognizing a competitive differential that they did not create and cannot prevent—try to recapture that part of the business which they can handle profitably.

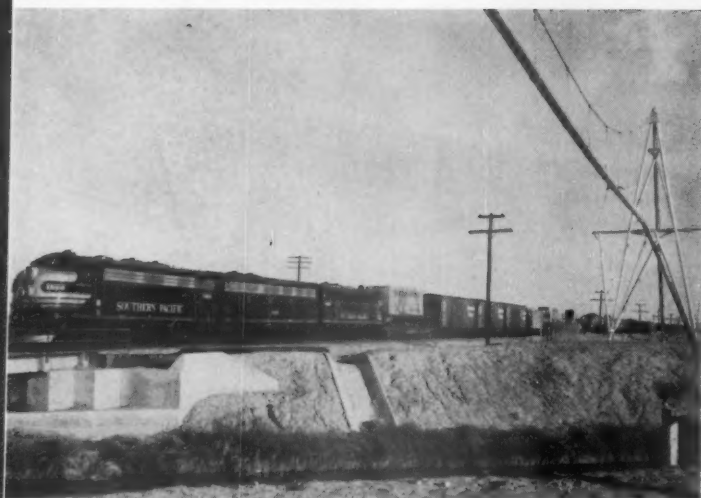
The ICC seems to believe (sometimes, happily not always) that it ought not to permit one competitor to capture more than a "fair share" of the business. What is a "fair" share—when one competitor can do the job at half the cost of another? Does the high-cost operator have some "right" to collect from his customers a premium of 10 or 20 or 30 per cent more than the price that there's any need of their having to pay? The ICC seems to think so (not always, just sometimes).

If this approach by the commission were one which operated indiscriminately—sometimes in favor of the railroads and sometimes in favor of their rivals—that would be one thing. But regulation is for the railroads strictly a one-way street. The ICC can and does forbid the Union Pacific Railroad to make rates on groceries from Ogden to Idaho, which would earn a profit for the railroad and reduce the delivered cost of groceries to Idaho consumers. But the ICC can't work the other way around and prevent trucks or barges from undercutting railroad rates, *because 95 per cent of barge traffic and 65 per cent of truck traffic are not subject to ICC regulation.*

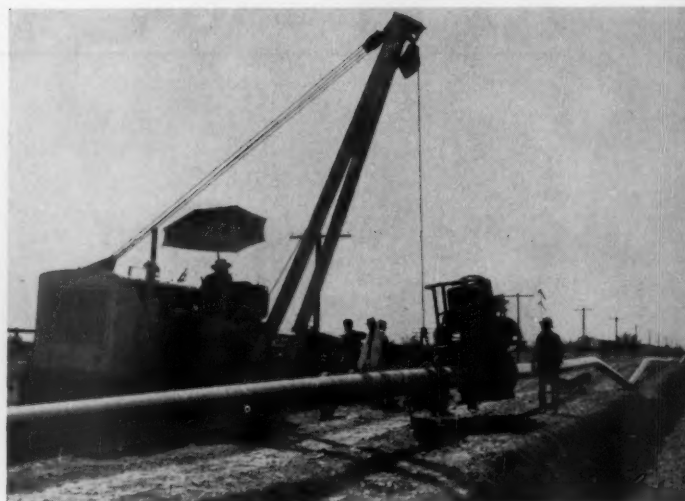
The law as it now stands permits and invites the ICC to play a game with the railroads of "tails you lose, heads your rivals win." In fairness be it said that the ICC doesn't always play the game that way—but even once is too much.

The commission itself once said that, to protect the high-cost carrier from competition in such cases as these "would be regulation in the interest of the high-cost agency rather than in the public interest."

There are scores of cases like the one cited here, which can be easily located in the bound volumes of ICC decisions, using as a guide the footnotes to Jervis Langdon's article in the Cornell Law Quarterly for last November—an article which was reprinted and rather widely circulated among railroads. Isn't it usually easier to convey information in the concrete than in the abstract? If so, why not do more of it?



SP 12-IN. PIPELINE crossing the Coachella irrigation canal, 7 miles east of Niland, Cal.



MECHANICALLY CLEANING pipeline prior to insulation and laying along SP right of way

SP Pipeline Is Working Now

Southern Pacific Pipe Lines, Inc., wholly owned subsidiary of the Southern Pacific, started operations early in January with a shipment of gasoline piped from a Standard Oil Company refinery near El Paso, Tex., to the pumping station there and consigned to Phoenix, Ariz.

Initially, the railroad's pipeline system will serve ten commercial shippers and the U.S. Air Force. It is said to be the first common carrier pipeline owned and operated by a railroad subsidiary, and the first common carrier pipeline to receive products directly from military storage facilities.

The main pipelines, completed in December, extend westward from the refineries at El Paso and eastward from the Los Angeles area to the consuming areas around Phoenix and Tucson, Ariz., and intermediate points, including Colton and Niland, Cal. The main line of 344 miles consists of 62 miles of 16-in. pipe (Watson to Colton) 356 miles of 12-in. pipe (Colton to Phoenix) and 426 miles of 8-in. pipe (El Paso to Phoenix via Tucson). Branch lines, with construction scheduled for completion in April, initially will total 176 miles of 6-in. pipe to serve four U.S. Air Force bases—March near Riverside, Cal.; Luke and Williams in the Phoenix area; and Davis-Monthan near Tucson.

Pipeline Follows SP Route

In general, the main pipeline follows the SP railroad route between Los Angeles and El Paso and where practicable is laid on the existing railroad right-of-way. Not restricted as to alignment or grades, the pipe is located on new right-of-way where a saving in distance can be realized on an economical basis. The route traverses the thickly populated and cultivated areas of Southern California and goes over mountains and desert terrain

through southeastern California and across Arizona and New Mexico. By means of suspension spans it crosses six major streams—the Rio Grande, San Pedro and Colorado rivers and the Yuma Main, All American and Coachella Canals.

Line Built by Contractors

Engineering Management, Inc., an organization experienced in pipeline construction and operation, designed the line and its facilities and through contractors installed the pipe, pumping stations and terminals. Laying of the line and installation of pump stations and terminals were handled in eight sections or schedules, with 19 major contractors and a number of subcontractors employing a force totaling approximately 1,500 persons at the peak period. The work schedule for the project was a fast one for a job of this magnitude. Southern Pacific President D. J. Russell made the first public announcement of the project in February 1955 (*Railway Age*, Feb. 28, 1955, p. 8), and first pipe was laid on the eastern segment near Lordsburg, N. M., on June 6.

Soil conditions varied from loam to sand with some caliche and about 2 per cent rock. Normal cover on the pipe is 30 in., with extra depth required in some areas. The 8-in. pipe is protected by asphalt coating, glass fiber inner wrap and felt outer wrap, and the 12-in. pipe by asphalt coating, glass fiber inner wrap and glass fiber outer wrap. The 16-in. pipe is coated with an asphalt mastic.

The total cost of the project, including branch lines for the military, will approximate \$35 million. In operating the line, largely by push-button controls, Southern Pacific Pipe Lines, Inc., employs approximately 100 persons in six departments—administrative, personnel,



HEAVY LINE shows the location of 844-mile pipeline now being operated by Southern Pacific Pipe Lines. The new pipeline closely parallels the SP route from Los Angeles to El Paso.

First common carrier pipeline owned and operated by a railroad subsidiary connects El Paso and Los Angeles refineries to Arizona

accounting, engineering, products movement and the field operating and maintenance staff. Railroad forces will cooperate in patrolling and policing the line where it is on railroad right of way.

Experienced Staff

D. J. McGanney, SP vice-president, is president of Southern Pacific Pipe Lines, Inc.; E. E. Mayo, formerly chief engineer of the railroad, is vice-president; and F. E. Kalbaugh, formerly division superintendent of the railroad, is general manager. Offices of the general manager are at 610 South Main st., Los Angeles. A staff of experienced pipeline men drawn from 19 different pipeline companies throughout the nation are responsible for operation.

Main line pumping stations for the western segment are at Watson (near Los Angeles) and Colton; a pumping station for the eastern segment is at El Paso. Largest of the pumping stations is at Colton, where three centrifugal pumps, each driven by a 900-hp electric motor, lift the liquid traffic some 1,530 ft through a 12-in. pipe to cross over the San Bernardino mountains. Watson employs three centrifugal pumps, each driven by a 300-hp electric motor, and El Paso two pumps, also driven by 300-hp electric motors.

On the Watson-to-Phoenix section, take-off terminals where deliveries can be made are situated at Colton and Niland; on the El Paso-to-Phoenix section a take-off terminal is located at Tucson. The main terminal for both sections is at Phoenix, where a \$3,000,000 facility has been built on a 60-acre site. The pipeline company maintains 18 of its own storage tanks here; in addition, several shippers have built or are building their own tanks.

The \$1,000,000 Tucson terminal has seven com-

pany-owned tanks, plus additional tanks owned by three shippers.

Products handled are regular, premium and aviation gasolines, diesel oil and jet fuel. Segregation between products is maintained; where adjacent products in the line are similar, separation is marked by insertion of small quantities of a harmless dye. Accurate measurement of quantities of each product is made through calibrated meters as the various products follow each other through the pipeline. Transportation charges are billed at tariff rates based on tickets printed by these meters.

Big Shippers Use Line

Initial capacity of the line is 52,600 barrels a day, which may be increased to an ultimate capacity of 76,100 barrels a day as pumping stations are added. The design provides that, by the installation of intermediate pumping stations, capacity can be increased when the need arises. The ten commercial shippers (in addition to the U.S. Air Force) presently committed to use the line include General Petroleum, Gulf, McNutt, Richfield, Shell, Standard, Texas, Texas Independent, Tidewater Associated and Union.

The Southern Pacific's announced purpose in entering the pipeline business is to provide complete surface transportation for freight-by-rail, highway truck, combined rail and truck ("piggyback") and now by pipeline, using whatever means may be most practicable. The decision to build the pipeline from two major refinery areas into Arizona was based principally on the situation in that state, which has shown tremendous growth during the past decade both in civilian population and in military installations, but which has no petroleum refineries within its borders.

Gas Turbine Hauls Local Trains

... BUT USES LITTLE FUEL



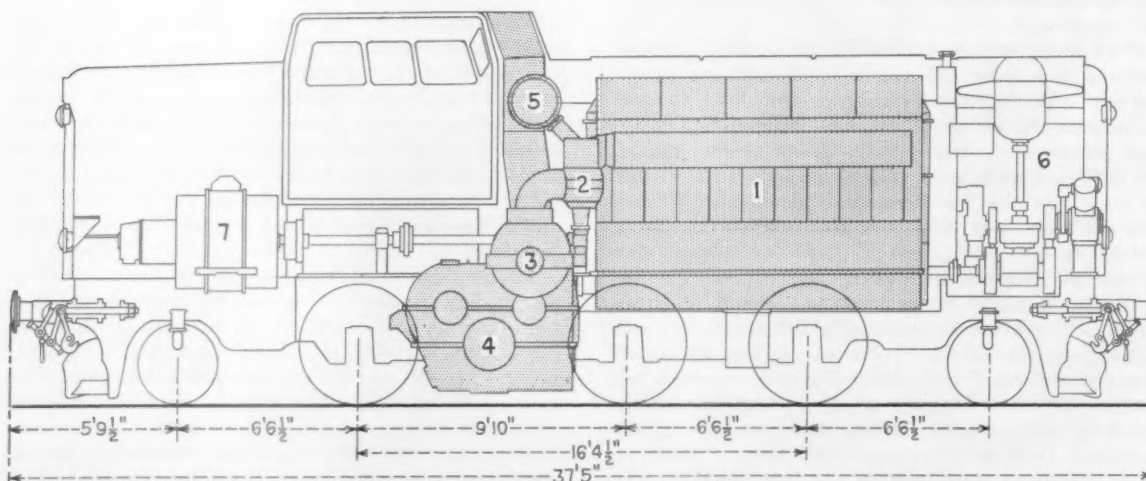
PASSENGER LOCOMOTIVE geared for 56 mph has a weight of 66 tons. Swedish State Railways expects to eliminate steam operation by extending electrification and using diesels or these power gas locomotives on lines with lighter traffic.

Swedish Gota "power gas" locomotive has low fuel consumption when idling and shows good fuel economy over its entire speed range

A gas turbine which idles economically and a diesel which needs no electric or hydraulic transmission have been combined to power a passenger locomotive operating on a Swedish State Railway. A year's service with this 1,300-hp unit has proved that it can achieve an overall efficiency to the rail of 31.5 per cent—a fuel consumption of 0.44 lb per rail horsepower hour. This figure is achieved when the unit is developing full power and operating at two-thirds of its maximum speed.

On this locomotive a gas producer—a two-cycle diesel—supplies the driving medium—the power gas—to a

gas turbine which through clutches and reduction gears drives the locomotive. The power plant has been under development for over thirty years by AB Gotaverken, a Swedish shipbuilding firm. The locomotive was built by Aktiebolaget Motala Verkstad using the power machinery from Gotaverken. The unit is now in daily service on a 244-mile round-trip local passenger run in southern Sweden. It has shown good availability and has regularly been able to make its scheduled time over a district where steam locomotives frequently ran late. (Continued on page 32)



THE 2-6-2 TYPE power gas locomotive uses a mechanical transmission. Major components are (1) diesel-type gas producer, (2) change-over valve, (3) gas turbine, (4) re-

duction gearing, (5) exhaust silencer, (6) radiator compartment, and (7) train heating alternator. Fuel economy over entire speed range is good.



In addresses to groups of railway and railway supply men, John W. Barriger, vice-president of the Rock Island, has outlined a plan of property betterment to produce "super-railroads." His most recent appearance to discuss the proposals was on January 23, when he addressed the Maintenance of Way Club of Chicago. This article is a summary of his remarks before that group.

Says John W. Barriger . . .

TO BEAT THE COMPETITION

We Must Have "Super-Railroads"

The success of every industry and its component corporations requires producing most of its output with modern equipment and facilities. Technical progress is so rapid that while obsolete capacity will keep on turning out goods and services as long as the property and machinery are kept in repair, **owners of out-of-date plants can seldom attract or hold competitive business at a profit in a buyer's market.** Unfortunately, obsolete machines don't harmlessly collapse like a burned-out light bulb—they remain as termites to gnaw away at service and profits.

Industrial corporations usually conceive plant expansion and development in terms of completely new mills and factories which will be designed and equipped to achieve maximum quality of product and efficiency within the established probabilities of the enlarged market that will follow such betterments. Railroads must similarly visualize the properties which could be provided if they were built completely new and capital were available to incorporate the full potential of technical progress into them.

Railroads are confronted by the rivalry of fully modernized plant facilities in other fields of transport as witnessed by the plans for "super-highways." "Super-railroads" alone can meet such competition successfully and

generate the volume of traffic essential to protect and re-establish the earning power on the additional capital investment that will be required to effect the transformation.

Every form of applicable scientific and technical progress will be found in use to some extent in today's railway plant and equipment, but too small a part is representative of the best. Solution of the railway problem requires intensive modernization in order that average plant and equipment conditions will be closely representative of the best. This objective can be financed and achieved by the traffic recovery resulting from equalizing competitive opportunities between the several forms of transportation in the manner recommended by the President's Cabinet Committee on Transportation.

If the present over-regulation of railroads can be relaxed within less than a decade, and probably no more than seven years, at least \$20 billion will be invested in additions and betterments which will project the average standards of rail service and economy far beyond the best achievements possible today. **Railways will recover a substantial proportion of the traffic that has up to now been eroded and diverted, and will in addition find their total business growing**

commensurately with the advancing transportation needs of the nation. This \$20 billion privately financed expenditure on railroads will obviate several times that amount of public expenditures by taxpayers to provide facilities for other forms of transport.

Between 500 and 600 billion ton-miles of railroad freight transportation are currently being sold annually. This total will advance to between 800 and 900 billion ton-miles as improved plant and equipment transform railroads into lower-cost-and-price mass producers of truly fast transportation.

The physical standards necessary for the freight service of the future will provide a railroad system which can offer such attractively scheduled and priced passenger train services that patronage will double or triple. This will convert passenger operations from a deficit to an income-producing business. Rail revenues will mount to \$15 billion per year, and net income—after allowing for debt service incident to capitalization of the development and the current rate of income taxation—will run between \$1.5 billion and \$2 billion.

Twelve and one-half billion dollars will be required for roadway improvements, and \$7.5 billion for new cars and locomotives. Half of this vast sum, \$10 billion, will be supplied from internal sources—i.e., reinvested net income, depreciation and retirement charges, liquidation of property and salvage. One-half will be procured externally, by \$6 billion equipment financing, \$3 billion in bonds and \$1 billion in new stock.

Successful railway operation requires an efficient adoption of service to traffic and plant and equipment to service. The plant and equipment of too large a part of most railways does not adequately meet this test. **Railroads were designed for traffic and transportation and competitive conditions of a period in the life of America that has passed.** Few, except the most favorably situated ones, have been able to effect the thoroughgoing internal plant conversions necessary to keep abreast of change and progress.

Modern Grading Machines Will Help

Insufficient capital and small-capacity grading machinery necessarily imposed heavy ascents, sharp curves and additional distances on railroads, which should now be revised to permit the production of maximum-speed freight and passenger transportation with the most economical use of power.

Literally billions of cubic yards of earth and rock must be removed from cuts and tunnels and compacted into fills, and long aggregate lengths of bridges must be erected to adapt the permanent way to the necessities of the freight and passenger train service of the future. The giant-capacity power shovels, drag-lines, scrapers, and bulldozers now building highways and dams and uncovering strip mines have produced extraordinary reductions in the cost of excavating and moving earth and rock. Such developments have completely revolutionized the depths of cuts that can be afforded in lieu of tunnels that would have been required in such locations in the past. Long cuts and fills, in excess of 100 ft in vertical depth or height, are now a construction practicability.

Major line changes and grade revisions are the basic conditions precedent to the conversion of the present

properties into "super-railroads." Probably 40,000 miles of line will be brought up to such standards, but no more than 10 per cent of this total, or 4,000 miles, will represent major relocations. These will represent hundreds of individual revisions 1 to 50 miles in length. Minor ones, leaving the basic location essentially unchanged, will occur at innumerable points, but will not aggregate much more than 1,000 equivalent miles in total length. The cost of all of this work, including track laying, but omitting bridges and tunnels, is estimated to be \$5 billion, or an average of \$1 million per mile, including property acquisitions. This, however, is modest compared to "superhighway" costs.

The most difficult feats of railway construction have been the bridges and tunnels required to provide the permanent way where waterways or mountains obstruct the route.

Super-railroads will not require the construction of any bridges which will take their place alongside the greatest ones now in place, but many hundreds of miles of line that must be relocated will require supporting structures of all types of construction, functional purposes and dimensions. At least \$750 million will be required for this work.

A "water level route" is the greatest transportation asset any railroad can possess. Wherever nature has not provided one for a line of major traffic importance (and a comparatively small proportion of the total mileages have been aided in this manner) capital and engineering must cooperate to approach this standard within the most favorable characteristics permitted by topography and railway economics. Ascents by rail on routes of major traffic importance should not exceed 0.5 per cent except in mountain zones where they may be increased to 1 per cent, but no more, up to a summit tunnel. This should be drilled at the lowest level consistent with the maximum bore length which the proper balance of construction costs and operating economies will permit.

Railroad tunneling will soon be required to attain achievements far surpassing those yet recorded, in order to project direct lines with easy grades across rugged terrain. Ten to fifteen bores, usually for double track and each from 10 to 30 miles in length, should be drilled to carry the principal routes of the country through ranges which they now laboriously climb on tortuous alignments and steep ascents. In addition, there will be several hundred tunnels varying from a small fraction of a mile to several miles in length. Long tunnels cost \$500 per linear foot for single, and \$800 per foot for double track, or from \$2.5 to \$4 million per mile.

Major improvement of the route characteristics of American railways will require drilling 300 miles of tunnels at a cost of \$1 billion. By comparison, the length of the 1,500 tunnels now in use on American lines aggregates 328 miles, but only three of these exceed three miles in length.

The track structure must have the strength necessary to permit safe and comfortable movement of trains of maximum length and weight running at maximum speeds. Freight trains of 150 cars and 6,000 or more tons weight will run 70 mph. Passenger trains with seating accommodations for over 1,000 people will operate at 100 mph over lines permitting sustained maximum speeds between terminals so that 70-80 mph schedules

will be easily and comfortably fulfilled. Track specifications adapted to the requirements of operation will also afford the lowest relative cost of maintenance.

Direct dispatcher control of all train movement, without the intervention of intermediate operators and interlockers, save within major terminal zones, will proceed rapidly. Comprehensive communication facilities will be built into this system with consequent increased precision and safety of movement. Voice and printer communication facilities must be completely adapted to the wide range of functions they serve on every railroad. Communications must be integrated into transportation and accounting to capitalize future opportunities for automation. The cost of making all of these improvements will be \$750 million.

Yard Problem "Immense"

Yards are generally less representative of modern engineering and operating technologies than any other important feature of railroad work, except the average freight-car repair facility. There are, of course, some excellent yards which have been built new or rebuilt within the past decade. While these are important, the general problem of yard modernization remains as an immense one. Probably as many as 500 should be modernized. After this is done, as many more can be closed. The projects will cost from \$500,000 to \$20 million each, and average about \$6 million. Together these improvements will require a \$3 billion expenditure.

Modernization of passenger-train facilities, stations and terminals will require about \$1 billion. This estimate visualizes passenger-terminal betterments related to utilitarian objectives and functional purposes only. Railroads will never again erect monumental edifices at their own expense and charge these vast ornamental areas and cubages of space against the passenger service.

These general developments should prove an incentive for railroads to improve their housekeeping and convert their present often unsightly entrances to cities into attractive approaches. The resultant gains in their own property values should justify the expense necessary to do so. Diesels permit railroads to be good neighbors, which was an impossibility as long as passing locomotives produced long trails of black smoke. The cleanliness of the new motive power can be converted into "other income" through rentals or profitable sales.

Part of the high cost of maintenance today is due to the lack of modern shops and facilities. **It is seldom realized that more money is spent in repairing and servicing cars and locomotives than in running them in trains.** Close to a billion dollars will be required to effect the required transformation of the maintenance of way and the maintenance of equipment departments to provide the highest available standards of mechanization and automation for these basic functions. Such an allowance covers locomotive and car servicing facilities as well as repair shops.

The improvements outlined will so greatly increase the transportation potential of existing fleets of diesel locomotives (supplemented by all-electric units on certain routes) through raising average speeds, loads and utilization that 50 million hp will accommodate total service requirements even of the greatly increased traffic visualized. (Diesel locomotives on "super-railroads" will produce on the average 90 cents of gross revenues per horsepower of capacity per day.) This will necessitate the addition of only 15 million horsepower to the existing fleets of locomotives. This will proceed at the rate of 2 million horsepower per year. In addition, railways will soon need substantial annual totals of replacement power, but that subject is not considered here.

The greatest concentration of obsolescence in the railway industry is in over-age freight cars built for steam and not diesel standards. Adequate discussion of this problem and the requirements of satis-

TO PRODUCE "SUPER-RAILROADS" THESE EXPENDITURES WILL BE NECESSARY . . .

	Types of Improvements	What's Involved	Expenditure
ROADWAY	Line and grade betterment	Major relocations totaling 4,000 miles; minor projects totaling 1,000 miles	\$ 5,000,000,000
	Bridges	New structures on line relocations	\$ 750,000,000
	Tunnels	Total of 300 miles on line-improvement projects	\$ 1,000,000,000
	Traffic control and communications	Direct dispatcher control of train movements with communications to match	\$ 750,000,000
	Yards	Modernization of about 500 yards	\$ 3,000,000,000
	Passenger facilities	Modernization of stations and terminals	\$ 1,000,000,000
	Shops	Modernization of locomotive and car-repair shops and servicing facilities	\$ 1,000,000,000
		Total	\$12,500,000,000
EQUIPMENT	Locomotives	Acquisition of units totaling 15,000,000 hp	\$ 1,500,000,000
	Freight cars	1,000,000 new cars at rate of 150,000 per year	\$ 5,000,000,000
	Passenger cars	Lightweight, mass-produced trains	\$ 1,000,000,000
		Total	\$ 7,500,000,000

factory modern freight cars is a separate subject in itself. Here, it must suffice to say that 1 million new freight cars of the most modern designs, and tailored to the same maximum standards which railroads would develop if an owner's cars never left its own rails, should be built within the next seven years—or about 150,000 per year. These will permit the retirement of the entire part of the freight-car fleet that is over 25 years old and, together with the other improvements envisioned herein, permit the increased business anticipated to be moved promptly with a substantial reduction in total car ownership. By use of standardized designs, mass produced in great quantities, the cost of a million new units might be held to \$5 billion.

Railway passenger service presently falls short of adequately fulfilling competitively successful characteristics of both mass and fast transportation, but it will attain both when the speed and cost characteristics of thoroughly modernized freight railways are reflected in passenger fares and schedules. **A billion dollar investment will be made over the next 7 to 10 years in lightweight mass-produced passenger-train cars.**

The program briefly outlined here will enable the railroads to attain their manifest destiny. It is practicable; it is feasible; but its consummation is dependent upon indoctrinating the hearts and minds of railway officers, and those in allied industries, with a burning ambition to go on to greater achievements.

ICC LOCOMOTIVE INSPECTION REPORT WARNS . . .

Diesel Housekeeping Must Improve

A slightly poorer defect record than the previous year's was reported in the ICC's 44th annual locomotive inspection report for the year ended June 30, 1955. The ICC pointed out that defects can be kept down on aging diesels only by increasing maintenance attention.

For the first time in 44 years of locomotive inspection, no steam locomotive boiler explosions were reported for the 12-month period. Most steam locomotive defects generally reflected the age and lower maintenance level of these units now.

Three fatalities were reported during the year in locomotive accidents, all caused by electrical equipment. A broken journal on a trailing diesel unit caused the derailment of two units and nine coaches of a passenger train and resulted in injuries to 59 persons—the largest number of casualties caused by a single accident during the year. The greatest number of reportable accidents was due to defective conditions of floors, steps and passageways on locomotives. It was these along with accidents due to failure of cab seats, doors and windows which caused the ICC to state that it is tightening up inspection of locomotive "housekeeping."

Most frequent cause of ordering other-than-steam locomotives out of service during the year was the condition of the internal combustion engines and their components. Other major causes, in declining order of importance, were brake equipment, fuel system, cab floors and deck plates, sanders, cabs and cab windows, and trucks.

The ICC reports a noticeable improvement in the accident trend since the war years—largely due to greater use of diesel locomotives. However, reportable defects have not declined at the same rate, and are higher than they should be, according to the ICC. The report states that "funds for travel in the past three years have not been sufficient to permit ICC inspectors to travel throughout their respective districts with the same frequency as in former years for the purpose of properly performing duties assigned under the law. The number of units inspected per inspector has remained approximately constant for this period but, because of their inability

to cover outlying terminals in the respective districts with frequent regularity, uniform inspection of locomotives throughout the various inspection districts has not been possible." It was stressed that sufficient funds should be appropriated for this purpose.

ACCIDENTS AND CASUALTIES

CAUSED BY FAILURE OF LOCOMOTIVE COMPONENTS

Number of accidents	1955		1954		1953	
	Killed	Injured	Killed	Injured	Killed	Injured
Members of train crews:						
Engineers	1	26	1	37	4	37
Firemen	1	34	.....	39	4	57
Brakemen .....	.....	11	.....	3	.....	20
Conductors	4	.....	4	.....	.....	8
Switchmen	4	.....	3	.....	.....	4
Maintenance employees	1	4	2	12	.....	8
Other employees	18	.....	2	.....	.....	2
Nonemployees	42	.....	194	1	.....	14
Total	3	142	3	302	12	150

WHAT DO ICC INSPECTORS FIND?

STEAM LOCOMOTIVES

	1955	1954	1953
Number of defects	7,350	9,763	12,980
Locomotives reported	8,892	12,135	15,798
Locomotives inspected	12,128	19,999	28,899
Locomotives defective	1,784	2,599	3,583
Percentage of inspected found defective....	14.7	13.0	12.4
Locomotives ordered out of service	96	117	163

LOCOMOTIVES OTHER THAN STEAM

	1955	1954	1953
Number of defects	22,618	19,640	17,163
Locomotive units reported	28,100	27,135	25,374
Locomotive units inspected	85,897	83,338	75,170
Locomotive units defective	8,129	7,395	6,571
Percentage of inspected found defective....	9.5	8.9	8.7
Locomotive units ordered out of service	127	140	118

PROPOSAL: Rail Transit Network

WHERE: San Francisco Area

COST: \$1.5 Billion

A 390-mile double-track rapid transit web, designed to link the San Francisco Bay area and surrounding suburban communities, has been recommended, following a comprehensive two-year study sponsored by the San Francisco Bay Area Rapid Transit Commission.

The plan calls for construction of the double-track electrified rapid transit routes over a 35-year period at an estimated cost of \$1½ billion. How financing can be arranged is presently under study by the Stanford Research Institute. A report on that phase is due March 1.

The proposal recommends use of conventional lightweight high-speed multiple-unit railway equipment. Extensive studies of both the conventional railway system and the suspended monorail system were made before choosing regular railway construction.

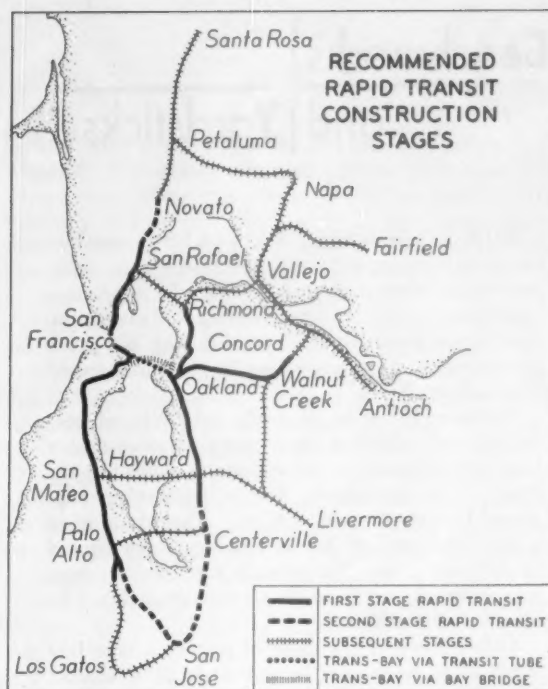
An estimated 700 modern high-speed 70-mph multiple-unit cars would be needed to equip the proposed system. These cars would add an estimated \$100 million to the plan's cost.

San Francisco Bay Area Rapid Transit Commission was created by the California legislature to survey rapid transit needs and transport problems of the Bay area. The legislature appropriated \$400,000 for the commission's work and the nine Bay area counties contributed another \$350,000. The study was made by a firm of construction engineers—Parsons, Brinckhoff, Hall & Macdonald.

According to the engineers' report, rapid transit is necessary for continued development of the Bay area. It contends that travel requirements of the public cannot be met by building facilities for autos alone, and that roads must be supplemented by rapid mass transportation facilities.

The optimum plan calls for a trans-bay subway tunnel, as well as subways beneath San Francisco and Oakland. Construction of an initial system of 123 miles of line, to be completed by 1962 at a cost of \$716 million, was recommended by the report. The second phase of construction would add some 42 additional miles of line to be completed by 1970, at a cost of \$112 million. The remaining construction called for in the report would be completed by 1990.

The engineers reported that it would be possible to use the present rail line of the Key System over the trans-bay bridge and to construct elevated lines in San Francisco and Oakland as an alternative to building the



PROPOSED RAPID TRANSIT NETWORK for the San Francisco Bay area would ultimately have 390 miles of double track line. The plan recommends a subway under Market street in San Francisco and a trans-bay subway tunnel.

trans-bay tunnel and subways. Although this alternative plan would cut construction costs about \$130 million it was not recommended, because the running time would be twice as long between Oakland and San Francisco as via tunnel. Construction of the tunnel would also free the present Key System right of way on the Bay bridge for motor vehicle traffic.

Proposed rapid transit north from San Francisco to Marin county (see map) would use a special rail line constructed below the motor vehicle deck on the Golden Gate bridge, the report said.

The new system's routes would parallel present commuting service routes of the Southern Pacific, Key System, and Greyhound Bus Lines. (The SP, in ordering 21 more double-deck commuter cars recently, said it wanted "to give the best service we can until such time as our commuter operations may be supplanted by some other form of service.")

Rapid transit lines would be designed especially to carry rush-hour commuter patronage and thus relieve the Bay area of the necessity for constructing a vastly expanded "freeway" network for automobiles which would only be used to capacity during morning and evening rush hours, the report said.

More than three million persons now live in the nine-county Bay area. The report predicts a 50% population increase within the next 15 years. The engineers said that "without rapid transit the region will ultimately pay many times its cost in additional hours of travel time . . . and in the premium costs of urban freeways and parking garages. We do not doubt that the Bay area citizens can afford rapid transit; we question seriously whether they can afford not to have it."

Benchmarks and Yardsticks

HOW TO CORRECT MISTAKES in appointments to managerial jobs is one of the most painful—hence often neglected—managerial problems. Lawrence Appley of the American Management Association discussed this question with his usual penetration and understanding in a recent issue of *Management News*.

Because there is no really easy way of correcting such mistakes, once made, the wise course is to take all possible precautions to avoid making them in the first place. One of the devices suggested is that of "job rotation." That is, provide a fairly definite schedule of moving people around in different jobs. Where such rotations are normal, shifts in assignments to less attractive jobs lose their ignominy.

Other devices are those of putting a man into a job when its regular incumbent is ill or absent; or giving a probationer a temporary special assignment with many of the characteristics of the job he is being tested for. None of these expedients, Mr. Appley concludes, is as effective as actually giving the man the job in question and a chance to make good in it. But, then, there is always the awkward problem which arises if his performance doesn't measure up to requirements. There is no alternative to replacing an incumbent if he cannot function effectively.

The best approach to the problem is, probably, that of testing men for executive capacity when they are still young. If they have the necessary qualities, they have them in the thirties as well as later on in life—and if a trial at any early age results in failure, it is much easier for the person affected to make the necessary readjustment. Says Mr. Appley:

"Young men and women with apparent potential for growth should be loaded with responsibility—and loaded heavily. If they can't take it, this is a good time to find out. If they can take it, we are indeed fortunate to have made the discovery so early."

Willingness to test quite young people for important managerial jobs should have another advantage, besides that of assuring competent men in jobs of responsibility—namely that of giving a company the benefit of 25 or 30 years of an able man's managerial talents. It is also a device that could be used to bring down the average age of the management team, where that result seems desirable—as not infrequently happens. It is largely a problem with younger people of giving them maturity.

Nothing really provides an opportunity to attain maturity quite so surely as the weight of responsibility—mere aging alone doesn't do it.

J. G. L.

Are Car Records

"YES," Declares . . .

HOWARD D. MURPHY

Partner
Price, Waterhouse & Co.

Electronic data processing has captured the imagination of American industry to an unbelievable extent, and the railroads are showing proper respect for—and interest in—it. Car accounting and reporting is one of the areas in which excellent work has been done in putting electronic data processing to railroad use. This is probably because the tremendous volume of detail makes this work attractive to study.

With over two million cars in use, most of which are subject to either per diem or mileage charges every day, there are a great many millions of bookkeeping entries to be made every month, and that is only a part of the car accounting story. Unfortunately, the emphasis has been on the individual development within each road instead of on better community growth through greater use of the common language concept and machines to facilitate interchange of data between roads.

To date, as each road develops faster and better methods for itself, it also develops more rigid codes and greater inertia against changing either codes or methods. Consequently, every week that goes by without standardized codes and procedures for use in car reporting and accounting makes their development and adoption that much more difficult. In the hope of making some contribution to the industry, I would like to make some suggestions for needed standardizations.

Car Identification

A standard alphabetic code should be developed using a standard word length of three letters for railroad ownership (with a fourth space used for a preferential sort designation in tabulating systems) and four letters for private car owners. This standard word length is required to facilitate assignment of fields in tabulating equipment and, for major roads, to avoid confusion in some types of high speed integrated data processors.

The railroad ownership code can be determined by application of three simple rules to the codes now used:

1. Eliminate the "&" unless it is necessary to make the three letters, in which case substitute the letter "A," e.g., B&O would be written BAO.

2. Where there are only two letters in the present code, add "R" to make the third letter, e.g., WM would be WMR. Some roads may prefer a blank instead but the "R" is preferred solely on the grounds of uniform word length.

3. Where there are more than three letters, after eliminating the "&," drop the last letters to reduce to three, e.g., D&RCGW would be written DRG.

Mr. Murphy's work as a certified public accountant has brought him into close contact with railroading. In recent months his connections with railroads have had him heavily involved with car accounting.

Too Costly Today?

After application of these rules, the complete list would be reviewed to eliminate conflicts, of which there will be a few. For private cars the code should be based on the same principles except that the fourth column should always be "X." Thus one run of the tabulating cards through a sorter will separate private cars, preferential sort railroad cars, and others.

After development of the alphabetic code, a parallel numeric code should be developed. The inherent disadvantages of two codes are apparent but, what is more important, many roads are not equipped to handle alphabetic data on tabulating equipment. Also, the trend in car identification must be toward "non-human" reading and, at this point, accurate predictions as to which code will be preferable are impossible.

A complete listing of these identifying marks should be developed, in the form of a manual, and circulated to all roads. Eventually all cars should be marked in accordance with this code. The expense of wholesale remarking of existing cars with the new code does not seem warranted at this time. However, it should be adopted by all roads and used for marking all new cars and in remarking where necessary for other reasons. The more important step will be to apprise fully all clerical help of the code and the principles followed in setting it up, so that they can use it in preparation of documents regardless of what may be written initially by yard clerks or others. This code probably should be used also in waybill preparation and revenue accounting.

A standard junction code is an absolute necessity to facilitate the record-keeping on interchange rather than on junction data. Whether the junction code now on the docket of the Accounting Division of the Association of American Railroads is satisfactory should be determined. But this determination should be made in the light of whether that code will do the job and not on the basis of whether individual roads want to change.

It would seem expedient to divorce the junction code from the proposed standard station code at this time. A uniform station code undoubtedly will appear eventually, but its desirability should not be allowed to hamper decision on the immediate problem of junction code.

Tabulating Cards

Most roads use IBM or Remington Rand tabulating equipment systems for car accounting. Essentially the same information is furnished to—and required by—each road, regardless of which system is used. Standard cards should be developed for each system and, if possible, the card layout should be the same for the two systems. In addition, information which is basic to all car accounting records should be in the same column locations on all cards. Thus, car identification marks and numerals might be in columns 1 to 10, which would then be true for all types of tabulating systems and for all cards within the system.

Also, while the immediate objective is greater exchange of tabulating cards between roads, the transmis-

sion of cards is very expensive and time consuming. Consequently, the ultimate aim should be to transfer punched paper tapes rather than cards, in the interests of both economy and speed. The use of a tape from which either IBM or Remington Rand cards can be produced would go a long way toward solving the present incompatibility problem between the two systems.

The three punched cards most concerned in interchange data are the per diem card, the interchange card, and the junction card. Of these, the per diem card usually contains the least data and should be the easiest to standardize. There is one main question to be decided, namely, "How many times will the card be used?" The single-use card, of course, allows the minimum of confusion and avoids the "hold-over" storage problem. On the other hand, a multiple-use card has the advantage of economy and, again, since we now are dealing in large volume, this is important. A two- or three-use card seems entirely practicable so long as suitable precautions are established to avoid improper field selection.

A so-called "standard" junction card is now employed by some users of one manufacturer's equipment. It may be the answer to the suggestion of a nationwide standard card, provided all of the tests of compatibility can be met. Since substantially all of the information shown on the junction card is the same as that on the interchange card, the design of the latter should follow once agreement is reached on the former. Furthermore, it may be possible to use a common card for both junction and interchange, thus eliminating one more form from the inventory. This will facilitate also automatic concurrent preparation of the two cards for any given interchange.

Cut-off for Reporting Per Diem

When car records are clearly closed they are so reported. However, there are a great many situations where the record is not clear. Such cases receive different treatment from different roads. These discrepancies in treatment naturally result in financial inequities but they also complicate the checking of per diem settlements. By analysis and an agreement as to the fairest terms,

There are savings to be made in car accounting and reporting, says the author. However, maximum economy in this field will not be achieved unless and until the railroads establish:

1. Standard codes of several types;
2. Standard punched per diem, junction and interchange cards;
3. Standard procedures for reporting time, records, etc.; and
4. Standard descriptive car classification.

Furthermore, he says, let's stop talking about exchanging punched cards. They're too expensive. Let's employ punched tapes. And lastly, can't railroads at least stop making detailed records for cars which were off-line the whole month?

these variations could be reduced and possibly eliminated entirely.

Present practices of recording time for preparation of car records range from a one-digit shift basis to four-digit hours and minutes. The most practicable system seems to be the use of two digits for hours only with a 24-hour clock. This would furnish the most information with the greatest safety margin on errors and would still be economical so far as space is concerned.

There is an apparent need for a car classification code which would readily show type of car. A suggested code would be a two-digit code with the first digit designating major type of car, such as box car, flat car, hopper or refrigerator. The second digit would indicate further details as to type. If such a code is adopted it should be made a part of the car number, to be written as a hyphenated suffix. Alternatively, the present one-character alphabetic code should be standardized. Since most roads already include some classification in their card record data, this actually would not increase the number of columns required.

Each of the foregoing suggestions has protagonists as well as opponents among car accountants. It would be absurd to suggest that changes of the magnitude of those proposed could be made without expense and some hardship.

However, a well planned program, allowing the necessary period for training of staff, would lengthen the transition period and minimize the difficulties by allowing roads to use up inventories of forms. Also, there would be tangible savings to be realized which must be considered in weighing cost. Oftentimes an error is made by assuming a need for unanimity in adopting such a plan. If eight or ten of the major roads should adopt a program along the lines suggested here, the pressure on other roads with which they have interchange traffic would be increased and gradual acceptance would result.

What Single Roads Can Do

Having spent all this time on the problems of the railroads as a community, there are some recommendations that should be made to the roads as individuals. First, in the event of adoption of the foregoing program, each railroad then would be faced with a vital decision—how far to go within itself in adopting new codes. For example, many roads today use as many as four different codes for station and junction designation. Each department involved is equally certain that (1) it has the most practicable code, and (2) that the other departments should make the change. In view of the obvious sincerity of all parties concerned, this is the sort of Gordian knot that must be cut by someone in very top authority, or allowed to continue in its inefficient and somewhat confusing path.

Second, the procedures for preparation of source documents for car accounting should be studied in complete detail in order to take every possible precaution to assure accurate data at the start. Examples can be found every day of errors at the source that were preventable.

Such errors are doubly expensive—doubly, because they cause penalty payments on per diem settlements and tremendous amounts of clerical time are used to

run them down. It's no exaggeration to say that an error of a day on an interchange sheet, caused by failure to change the date stamp of the delivery road promptly at midnight, may cost over \$100. Possibly an educational program is in order to make all employees conscious of the problem. In any event, a study of the cost of such errors (in clerical work as well as penalties) should convince management of the importance of the problem.

Third, to a detached viewer, there seems to be room for more accounting by exception. At the present time, most roads prepare complete records each month for all cars owned by them. These records serve two main purposes—checking per diem settlements, and providing an historical document which is useful in checking foreign line car repair bills. In most cases, over 90% of both the per diem and the car repair bills are found to be in order. If only to convince management, a study should be made of the costs of preparation of this record and of referrals to it. If this study indicates excessive cost when related to value, a further study should be made of how the record might be eliminated in part or in whole. As a thought starter, it may be possible to eliminate the detailed car record for those cars which were off-line the full month and for which a full month's per diem was received. (At least one road is now doing this.) The other possibilities are limited only by one's imagination.

These recommendations are not intended to be a panacea for all of the car accounting ills. However, they are some of the more obvious points which require study and consideration. Let there be no doubt about it, there are savings to be made in car accounting—by greater cooperation between roads and by computation and scrutiny of the costs of getting and checking data!

GAS TURBINE HAULS LOCAL TRAINS

(Continued from page 24)

The power gas producer is a five-cylinder two-cycle opposed-piston diesel engine. The crankshaft has three cranks for each cylinder. The upper piston is attached to the crankshaft by two rods running up each side of the combustion cylinder, and the lower piston is connected conventionally through a wrist pin and single rod. The scavenging air compressor piston is directly attached to the upper piston and the scavenging air cylinder is placed above and in line with the working cylinder. The engine works with so high a back pressure on the exhaust gas that all the power developed except that consumed by the auxiliaries is consumed to supply scavenging air. All the air that is compressed in this reciprocating type air compressor is used for scavenging the combustion cylinders. The power gas delivered to the turbine is a mixture of exhaust gas from the combustion process and excess scavenging air swept right through the cylinders.

According to the builders, instead of utilizing only 30 per cent of the expansion process as is typical in diesel engines, the power gas locomotive expansion continues down to atmospheric pressure. With scavenging air pressure of 61 psi, there is about twice as much air

available per unit of fuel injected as in a typical two-cycle diesel. Power gas delivered to the turbine will be about 57 psi and 935 deg F.

Control of power output is accomplished by altering the amount of fuel injected into the cylinders. This affects both speed and power gas pressure. When the engine is idling, the gas no longer passes through the turbine. A change-over valve operates at idling speed and the gas from the diesel-type gas producer then passes off through a silencer to the atmosphere. The fuel consumption at idle is about 8 per cent of the full load.

Power transmission between the seven-stage reaction turbine and the driving wheels is achieved by a double reduction gear and side rods. Gas delivered to the turbine at 935 deg F has a temperature of a little over 500 deg F when it passes into the silencer. At maximum speed of 56 mph the turbine operates at 12,500 rpm.

The power gas producer drives the radiator fan, auxiliary generator, and oil, water and air pumps. The unit is started with compressed air, and a small one-cylinder engine is available to charge the starting air reservoir if its pressure has dropped. Electric train heating has been adopted as standard in Sweden. The only other shaft output from the gas producer is used to drive a 125-kw alternator which supplies this train heating power. The unit has a pneumatic system for changing weight distribution of the locomotive to increase driving wheel loading while starting.

The mechanical transmission has losses of only four to five per cent as compared with nearly 20 per cent in an electric transmission. The exceptional fuel economy of the locomotive is attributed to small power losses in the gearing and to the complete expansion possible with this power plant.

(Continued from page 16)

L. Smith, whose retirement was noted in *Railway Age*, January 2, page 15. **F. J. Zika**, assistant to the freight traffic manager, replaces Mr. Larson. **J. C. Burklow** and **F. E. Kriebel** have been appointed assistant freight traffic managers, rates and divisions, while **J. E. Dias** has become assistant to the freight traffic manager, rates and divisions. **W. F. McGowan**, assistant freight traffic manager, central district, has been appointed freight traffic manager, central district, to succeed **P. P. Dougherty**, retired (*Railway Age*, January 2, page 15). Mr. McGowan's successor is **C. E. Miller**, assistant to the vice-president of system freight traffic. **Willard Barr**, assistant freight traffic manager, central district, has been named general freight agent in charge of solicitation for the central district, and **M. P. Sayles**, assistant freight traffic manager, has been appointed assistant to the vice-president of system freight traffic. All will have headquarters at San Francisco.

Harry M. Williamson, assistant engineer, maintenance of way and structures at San Francisco, has been appointed engineer, maintenance of way and structures there, succeeding **R. W. Putnam**, who has been granted leave of absence pending retirement. Mr. Williamson's successor is **Godfrey J. Lyon**, division engineer, Portland division.

Effective February 1, **William D. Lamprecht**, assistant general manager of operations at San Francisco, has been promoted to general manager there, succeeding **R. E. Hallawell**, whose retirement was announced in *Railway Age*, January 16, page 12.

TEXAS & NEW ORLEANS.—**Felix D'Abadie**, agricultural agent at Houston, retired February 1.

TOLEDO, PEORIA & WESTERN.—**A. J. Charlton**, general agent at San Francisco, has been appointed head of a new TP&W office at Portland, Ore.

UNION PACIFIC.—**Delano F. Wengert**, general superintendent, Northwestern district at Portland, has been appointed general manager,



Delano F. Wengert



J. G. Kimmell

Northwestern district there, succeeding **Angus McAllister**, who retired January 1 after 52 years of service. **J. G. Kimmell**, superintendent at Portland, has been named general superintendent at that point. **C. B. Lisher**, assistant superintendent, has been advanced to superintendent, and

Jack Bowen, trainmaster at Portland, has become assistant superintendent.

David R. Walker, traveling freight and passenger agent at Winston-Salem, N.C., **Joseph E. Pilon**, district freight and passenger agent at Birmingham, Ala., and **Theodore F. Meyer**, traveling freight and passenger agent at



C. B. Lisher

Boise, Ida., have been appointed general agents at Winston-Salem, Birmingham, and Salina, Kan., respectively. Mr. Meyer succeeds **J. M. Brown**, who recently retired.

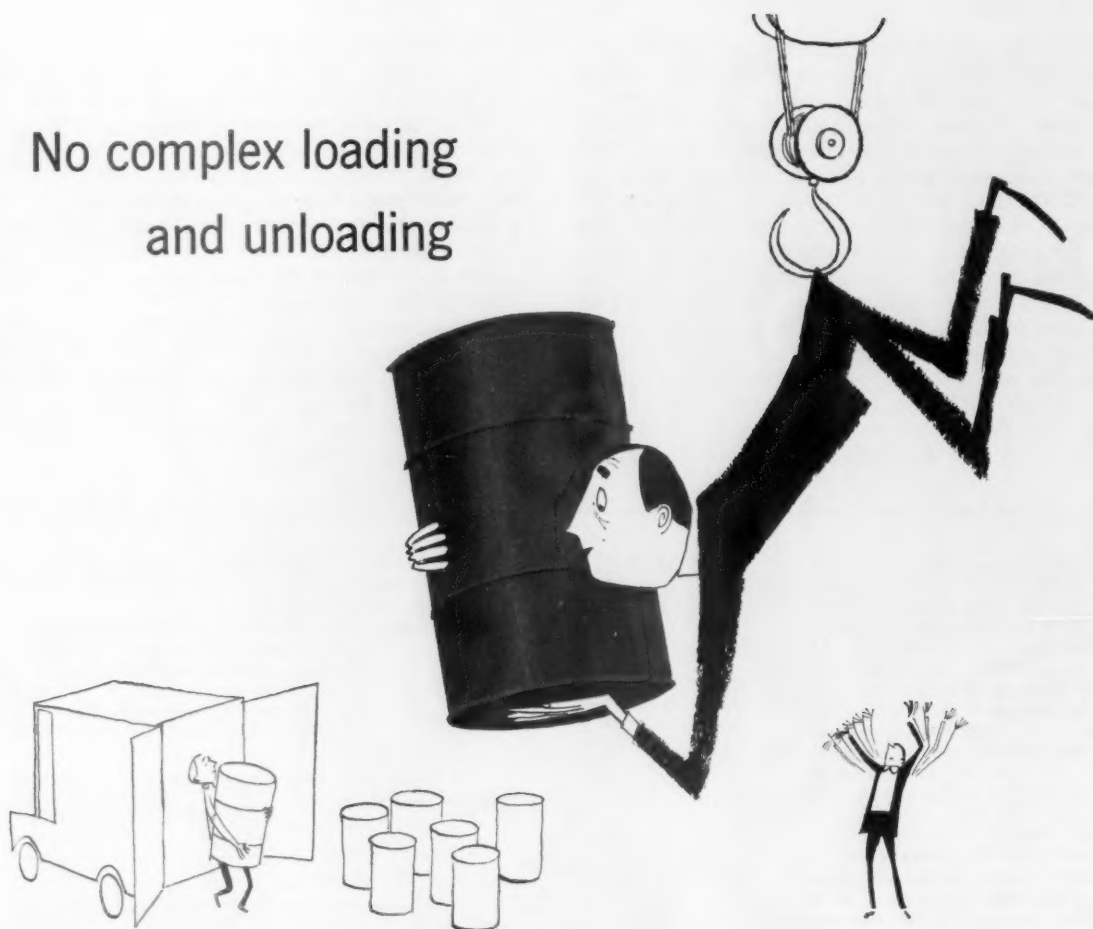
OBITUARY

Wilson McCarthy, 71, president of the **Denver & Rio Grande Western**, died February 12 at Salt Lake City, Utah.

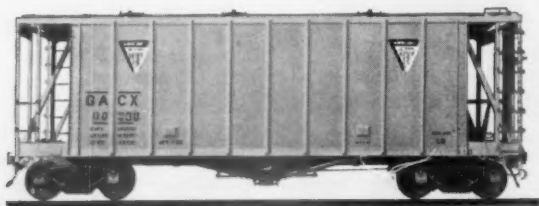
Hollis C. Pearce, retired special representative to the president of the **Chicago Great Western**, died February 7 at Chicago.

Philip C. Otterback, 58, secretary of the **Association of Western Railways**, died February 9 at Evanston, Ill.

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Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.

COMPLETE RANGE

STREAMLITE HAIRINSUL is available 1/2" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other weights and facings are available.

HIGH SALVAGE VALUE

The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

Sudden and extreme temperature changes do not harm valuable perishables when they are shipped to market in cars insulated with dependable Streamlite HAIRINSUL.

Leading refrigerator car builders recognize this fact. That is why, for half a century, they have been specifying HAIRINSUL, the dependable all-hair insulation. They know it is the most efficient, most economical under ALL conditions . . . and that Streamlite HAIRINSUL weighs 40% less.

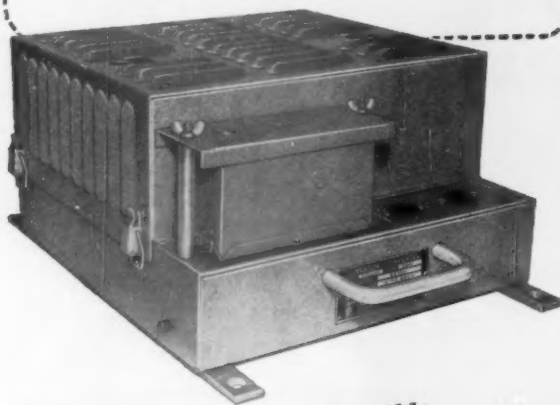
More reasons why refrigerator car builders prefer Streamlite HAIRINSUL are given at the left. There are more, too. Write for complete data.

AMERICAN HAIR & FELT COMPANY
Merchandise Mart • Chicago, Illinois



SETS THE STANDARD BY WHICH ALL OTHER REFRIGERATOR CAR INSULATIONS ARE JUDGED.

Another C-D first

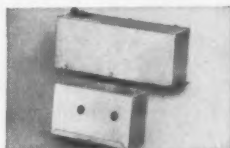


A New Low-Cost ^{Convertible} R. R. Converter

Yes, it's a new Cornell-Dubilier idea. Install the single vibrator economy Model 3600 converter now and convert to a dual vibrator, automatic switchover unit at any future time. Change over in a few seconds without tools.

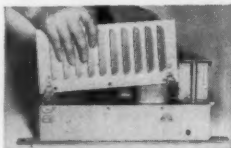
Same rugged dependability as the nationally famous "3200 Series C-D RR Converter" but priced for low cost initial (single vibrator) installation. 50% longer vibrator life expectancy.

Write for Bulletin EB-3600, Cornell-Dubilier Electric Corp., Indianapolis, Indiana. Affiliated Member A.A.R.



CONVERSION KIT

Consists of Standby Vibrator and automatic Switch. Can be purchased whenever you're ready for dual vibrator service.



INSTANT ACCESSIBILITY

Trunk hasps afford quick access for conversion. Either RACK or BULKHEAD mounting, as ordered.



PLUG-IN CONVERSION

Field changeover like a vacuum tube. Kit can be plugged-in in minutes without tools.



COMPLETE UNIT

Available initially for dual vibrator operation factory equipped with automatic changeover feature.



CONSISTENTLY DEPENDABLE
CORNELL-DUBILIER

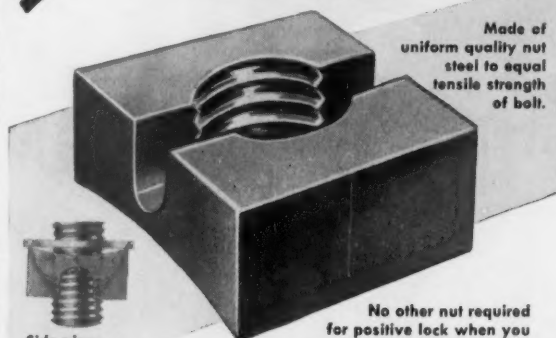
VIBRATOR CONVERTERS

For Industrial—Marine—Railroad and Appliance Services

PLANTS IN SO. PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER & CAMBRIDGE, MASS.; PROVIDENCE & HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; FUGARTY SPRINGS & SANFORD, N. C.; SUBSIDIARY: RADIANT CORP. CLEVELAND, O.

FOR POSITIVE LOCK USE

Lewis **LOKTITE** NUTS



Made of uniform quality nut steel to equal tensile strength of bolt.

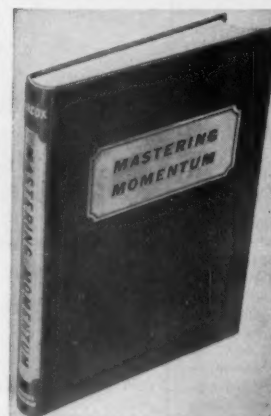
Side view, reduced.

No other nut required for positive lock when you specify Lewis Loktite Speed Holding Nuts. Manufactured to American Standard regular or heavy dimension, the trimmed sides provide a close wrench fit. Available in Hot-Dip Galvanized finish for Double-Life, greater economy, in black for low original cost. Call, wire or write for samples, prices.

All products are manufactured in the U.S.A. to A.S.T.M. specifications.



BOLT & NUT COMPANY
504 Malcolm Ave. S. E.
MINNEAPOLIS 14, MINNESOTA



Just Published—

Revised edition of a standard technical work on the varying aspects of train acceleration and retardation

By

Lewis K. Sillcox

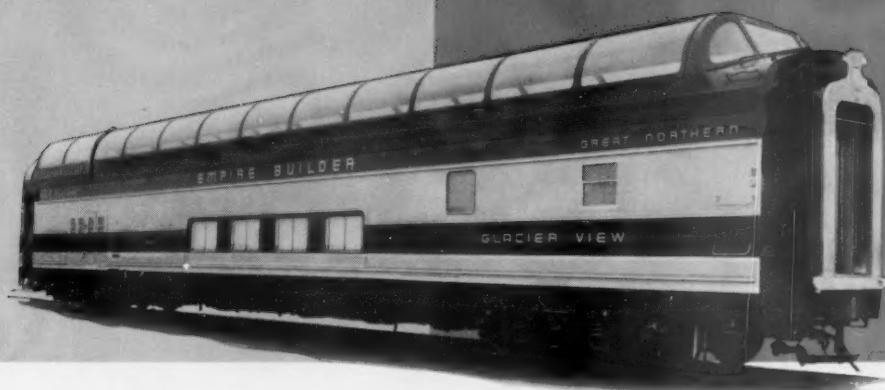
Honorary Vice Chairman
New York Air Brake Co.

Based on the author's lectures at the Massachusetts Institute of Technology and first published in 1941, the scope of this book is far wider than the title, *Mastering Momentum*, suggests. Its six chapters discuss: Mechanics of train operation and braking; Car wheels and axles; Locomotive and car truck design; Rail reaction and riding qualities; Draft gear, and Conclusion. This thorough revision was brought completely up to date in the light of modern practices. 248 pages; 6 1/4" x 9 1/4"; 87 illustrations, charts and tables; cloth; \$5.75, postpaid.

RAILWAY AGE BOOKS

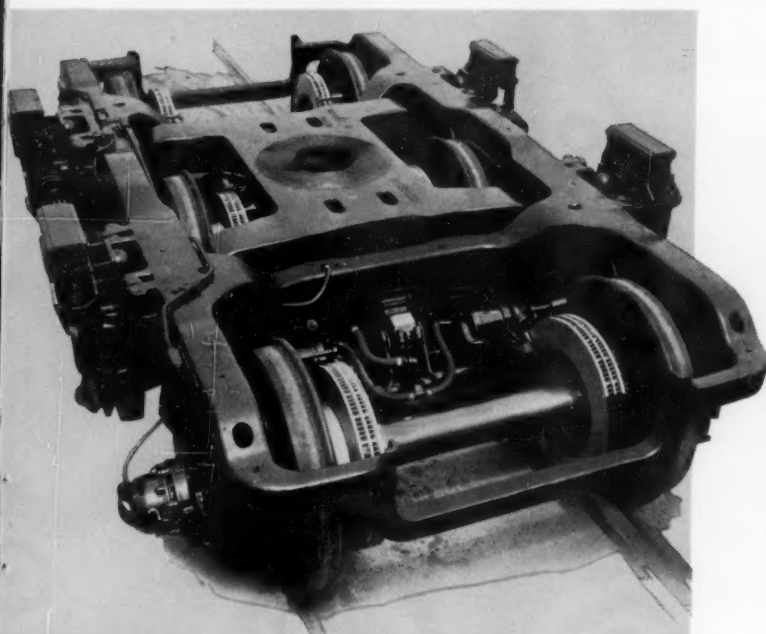
30 Church St., New York 7, N.Y.

Built by
The Budd Company



New Dome Cars for the Great Northern

With Commonwealth Outside Swing Hanger Trucks Provide Outstanding Passenger Comfort and Safety



Top view of 6-wheel outside swing hanger type truck with large central bearing.

The Commonwealth 6-wheel trucks under these new full length dome cars, with outside swing hangers and spring suspension, assure exceptional riding comfort and safety with lowest upkeep cost.

These modern trucks of latest design greatly simplify inspection and maintenance because of greater accessibility of parts. Central bearings eliminate truck shimmy and increase mileage between wheel turnings.

For the utmost in passenger travel comfort, plus substantially lower maintenance expense, equip *your* cars with Commonwealth Trucks with outside spring suspension, central bearings, and cast steel truck frames and bolsters.



GENERAL STEEL CASTINGS

GRANITE CITY, ILL.

EDDYSTONE, PA.

To get top advertising authority,

Look for...

Top Editorial Authority



Q: Which railway paper is first with vital industry news?

A: Railway Age

(93% of the major articles in RAILWAY AGE are either "firsts" or "exclusives.")



Q: Which railway paper carries most working information?

A: Railway Age

(RAILWAY AGE carries over twice as many editorial pages as number two paper.*)



Q: Which railway paper carries most buying information?

A: Railway Age

(RAILWAY AGE carries nearly a third more advertising pages than the number two paper.*)

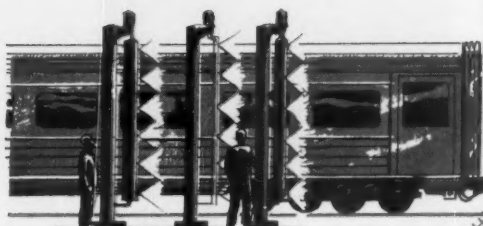
*Based on the last full calendar year

RAILWAY AGE | Workbook of the Railways

SIMMONS-BOARDMAN PUBLISHING CORPORATION
Terminal Tower, Cleveland 13

• 30 Church St., N. Y. 7 • 79 W. Monroe St., Chicago 3
Dallas, Los Angeles, Portland, Ore., San Francisco, Coral Gables, Fla.

Oakite gives you the **IMPORTANT** advantage ... **LOW-COST END RESULTS**



FOR EXAMPLE: *one railroad
saves \$2625 a month
on car washing...*

With cleaning materials, cost per pound can deceive you. Compare costs at the *end* of a job to find your best buy.

It's with just such a comparison that one smart operating official is saving his road thousands of dollars. Here's what the records show when Oakite Compound No. 88 is used in a single end automatic car washer.

	Initial Cost per lb.	Solution used	No. of lbs. required to clean 7500 cars	Cost of material per car cleaned	Total material cost per month
Cheaper Cleaner	.16	3 oz./gal.	21,093¾	.45	\$3,375.00
Oakite Cleaner	.18	1½ oz./gal.	4,166⅔	.10	750.00

Monthly savings to Railroad are: **\$2,625.00**

Oakite Compound No. 88 successfully does what the material it replaced could not do. It loosens all grease, grime and Crater's Compound from car sides for easy rinsing *without leaving any streaks on sides and windows*. And, as the figures show, it does this with a more *economical* solution.

Here, then, is actual case-history proof that in railroad cleaning, Oakite gives you the **IMPORTANT** advantage . . . **LOW-COST END RESULTS**.

To find out how specialized Oakite Cleaning materials and streamlined Oakite methods can save money for your railroad contact your local Oakite man or send for 56-page booklet "How to make sure of the best in railroad cleaning." No obligation. Oakite Products, Inc., 46 Rector Street, New York 6, N. Y.



Export Division Cable Address: Oakite



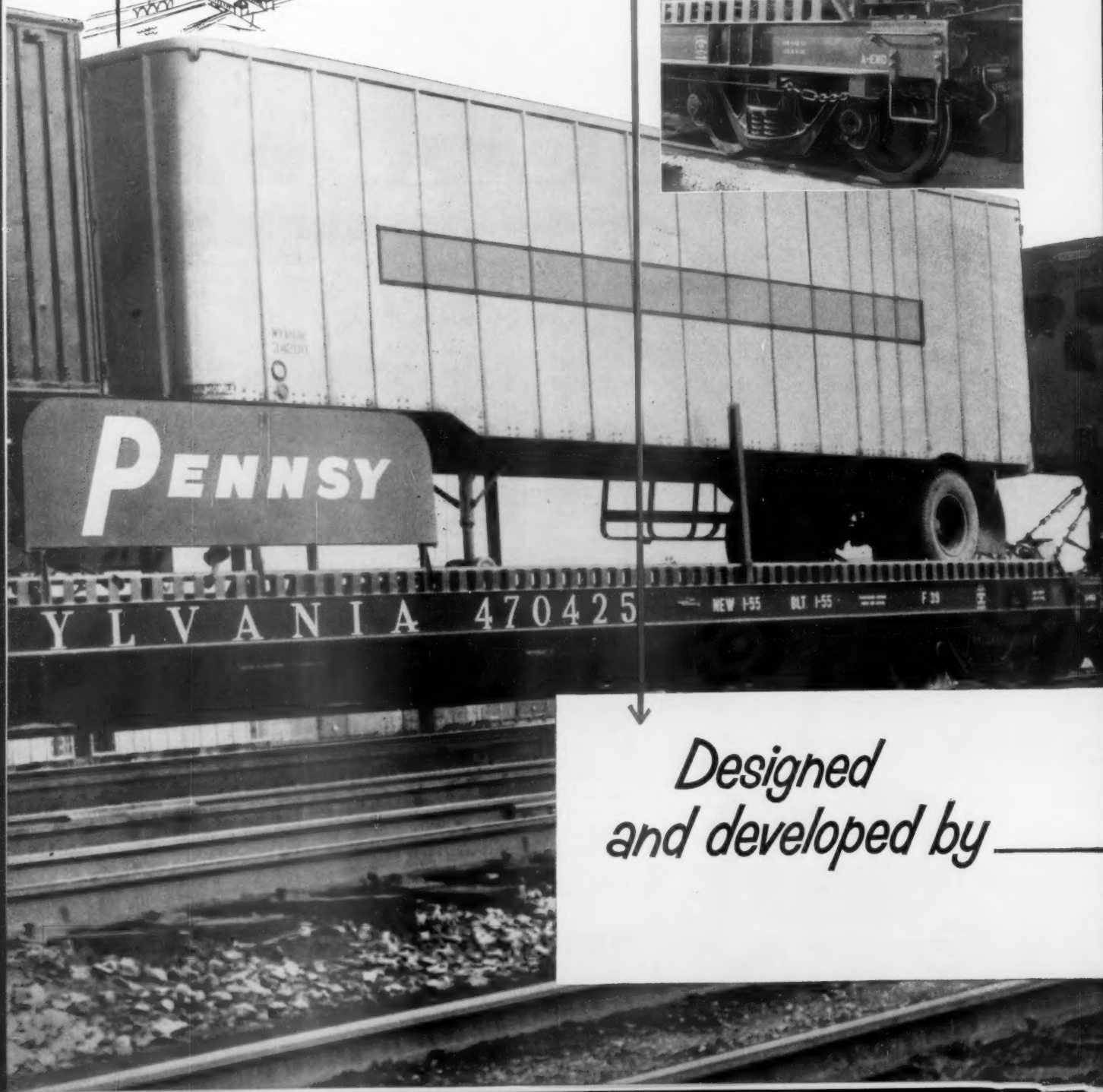
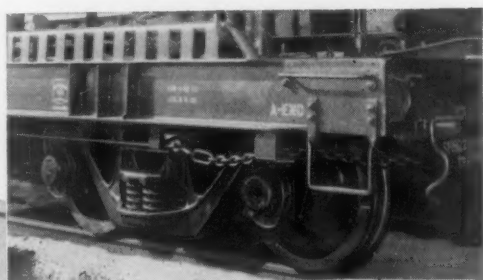
RAILROAD DIVISION

*The shortest distance
between two points is a*

Safe,

for smooth hauls...at high speeds...

the TrucTrain rides on A-3 trucks



*Designed
and developed by _____*

Smooth Ride

Keep your eye on a current example of railroad foresight
... the Pennsylvania Railroad in cooperation with the Rail-Trailer Company
has inaugurated the new TrucTrain service running daily from New York to Chicago.
It's the first long-distance service of its kind.

Two new, fast trains have just been put into service,
each train with a capacity of 100 loaded trailers. Brand-new, specially built
75-foot flat cars are in the consist, carrying two trailers per day.
Service between points: 29 hours flat!

Some will call this an experiment ... but it's also *progressive railroading*.
Industry benefits from progressive railroading, and industry will patronize it!



ASF

AMERICAN STEEL FOUNDRIES

Prudential Plaza, Chicago 1, Illinois

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands, i.e., with last three digits omitted)

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1955

Name of Road	Average mileage operated during period	Operating Revenues		Total Revenues		Operating Expenses		Total Expenses		Operating Ratio		Net railway tax operating income	
		1955	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955	1954
Freight													
Akron, Canton & Youngstown, Dec. 12 mos.	171	8,496	8,508	8,451	8,527	83	865	850	813	853	8164	8,405	8,343
Akron, Canton & Youngstown, Dec. 12 mos.	171	8,496	8,508	8,451	8,527	83	865	850	813	853	8164	8,405	8,343
Archison, Topeka & Santa Fe, Dec. 12 mos.	131	48,232	50,842	48,184	7,786	7,983	106,924	100,831	25,651	14,590	185,475	163	159
Atlanta & St. Andrews Bay, Dec. 12 mos.	82	3,972	11	4,053	3,759	434	303	22	314	334	63	819	1,847
Atlanta & West Point, Dec. 12 mos.	93	2,566	41	3,655	3,892	480	55	52	11	65	59	13	17
Western of Alabama, Dec. 12 mos.	133	2,878	313	3,644	4,319	606	63	77	69	18	143	328	3,411
Atlantic & Danville, Dec. 12 mos.	205	1,622	131	1,355	1,584	314	357	48	139	156	60	117	564
Atlantic Coast Line, Dec. 12 mos.	5,287	11,858	1,620	15,109	13,228	1,713	1,888	338	2,083	2,957	598	435	5,619
Charleston & Western Carolina, Dec. 12 mos.	343	6,232	3	6,366	6,604	1,652	1,812	135	1,277	1,222	509	227	1,845
Baltimore & Ohio, Dec. 12 mos.	6,120	383,955	18,651	432,001	378,069	54,946	45,436	8,887	89,688	76,176	12,168	10,642	175,753
Staten Island Rapid Transit, Dec. 12 mos.	29	198	60	262	239	62	51	12	27	29	2	158	286
Bangor & Arcoctock, Dec. 12 mos.	602	12,700	353	13,310	12,259	2,743	2,834	274	3,041	2,732	1,159	257	3,750
Bessemer & Lake Erie, Dec. 12 mos.	208	26,218	6	26,651	20,456	2,383	4,259	217	8,621	6,591	1,664	354	5,361
Boston & Maine, Dec. 12 mos.	1,574	5,724	868	7,385	6,887	1,005	1,244	306	1,088	1,115	214	189	3,489
Cambria & Indiana, Dec. 12 mos.	35	1,045	1,764	1,925	1,487	477	1,32	1,127	1,062	1,239	267	1	289
Canadian Pacific Lines in Maine, Dec. 12 mos.	234	5,535	565	6,463	5,859	1,228	1,127	65	1,324	1,195	209	7	2,749
Canadian Pacific Lines in Vermont, Dec. 12 mos.	90	102	12	213	211	43	42	1	50	52	2	6	130
Central of Georgia, Dec. 12 mos.	1,764	3,302	1,796	43,159	40,021	6,975	6,252	583	7,717	6,611	1,750	1,934	16,160
Central of New Jersey, Dec. 12 mos.	613	48,063	5,454	57,870	56,052	8,491	7,594	2,126	9,968	9,653	2,108	859	24,249
Central Vermont, Dec. 12 mos.	397	850	57	996	948	355	146	210	1,203	1,256	72	11	425
Chesapeake & Ohio, Dec. 12 mos.	5,132	29,609	696	30,281	30,518	46,872	41,342	5,317	6,410	5,692	17,231	8,407	12,576
Chicago & Eastern Illinois, Dec. 12 mos.	868	352,524	7,557	380,281	371,518	2,908	4,588	349	5,814	5,436	1,600	1,649	13,352
Chicago & Illinois Midland, Dec. 12 mos.	130	658	5	777	751	35	91	11	125	134	38	29	209
Chicago & North Western, Dec. 12 mos.	7,836	12,176	20,872	198,718	188,440	29,481	29,512	3,963	3,057	4,370	10,001	4,591	89,220
Chicago, Burlington & Quincy, Dec. 12 mos.	8,806	155,867	1,830	21,008	21,296	3,365	2,912	5,491	39,150	43,181	10,021	6,156	97,279
Chicago Great Western, Dec. 12 mos.	1,470	2,940	8	3,170	2,637	464	457	457	513	431	123	134	657
Chicago, Indianapolis & Louisville, Dec. 12 mos.	1,470	32,324	149	34,872	32,742	193	234	24	335	312	775	1,164	7,923
Chicago, Milwaukee & St. Paul & Pacific, Dec. 12 mos.	10,641	205,618	13,638	245,498	237,745	44,255	38,684	5,953	47,945	46,884	10,764	5,814	94,144
Chicago, Rock Island & Pacific, Dec. 12 mos.	7,920	11,950	1,672	15,346	15,548	1,933	1,739	343	2,800	2,200	562	487	6,102
Chicago, St. Paul, Minn. & Omaha, Dec. 12 mos.	1,616	2,513	1,62	33,326	33,017	5,678	5,280	547	500	446	987	808	15,894
Chicago, St. Paul, Minn. & Omaha, Dec. 12 mos.	1,616	2,513	1,62	33,326	33,017	5,678	5,280	547	500	446	987	808	15,894
Chicfield, Dec. 12 mos.	302	19,879	19,997	20,875	2,892	3,272	249	249	3,640	3,521	1,093	604	4,341

Now *Two* Men Can Upgrade 30 Cars A Day!

● Pick any two men in your yard crew! With an hour's training, they can upgrade 30 cars a day with the ADM Freight Liner System. They just follow three simple steps shown at the left.

In a matter of minutes this car was upgraded and ready for a bulk lading. Cost of labor and materials for spot patching was only 15 cents a square foot.

Whether you are patching or completely relining cars, the ADM Freight Liner System is fast, low cost and practical.

Apply at any location, in any weather.

In service for over a year, the ADM Freight Liner System not only upgrades cars faster but reduces both damage claims and per diem charges. Claims for sacks and packaged goods torn in transit are drastically reduced. Leakage of bulk shipments is controlled.

Qualified ADM service engineers provide everything needed to start your yard crew on an upgrading program. For an ADM Freight Liner System demonstration on your own cars at any track location, write, wire or phone (FEDeral 3-2112 -Minneapolis) ADM Freight Liner System, 700 Investors Building, Minneapolis 2, Minnesota.

ADM

Freight Liner **SYSTEM**

**Archer-
Daniels-
Midland
company**



OTHER ADM PRODUCTS: Linseed, Soybean and Marine Oils, Paint Vehicles, Synthetic and Natural Resins, Polyesters, Fatty Acids and Alcohols, Hydrogenated Glycerides, Sperm Oil, Foundry Binders, Industrial Cereals, Vegetable Proteins, Wheat Flour, Dehydrated Alfalfa, Livestock and Poultry Feeds.



1 Spray, brush or roll ADM Freight Liner Plastic on wood or metal areas to be patched. Freight Liner plastic is ready-to-use as it comes from the drum. Standard spray equipment can be used. No special surface preparation required.



2 Apply Freight Liner Fibreglas over the area to be patched while first coat of Freight Liner Plastic is still wet. Fibreglas can easily be cut with shears to desired size. Plastic plus reinforcing cloth gives a finished tensile strength of 1650 pounds per square inch.



3 Apply second Freight Liner Plastic coating to impregnate reinforcing Fibreglas. Coating air dries rapidly to tough, smooth, abrasion-resistant surface. Seals out dirt and insects. Where large broken areas require added strength, the coatings may be laminated in several layers.

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1955

Name of Road	Average mileage operated 12 mos.	Operating Revenues		Total and Deprec.		Operating Expenses		Operating ratio		Net railway from operation		Net railway operating income 1955
		1955	1954	1955	1954	1955	1954	1955	1954	1955	1954	
Freight		Pass.	Total (inc. misc.)	Total	Retire- ments	Total	Retire- ments	Trans- portation	Total	Total	Operating ratio	1955
Akron, Canton & Youngstown.....	171	\$496	\$508	\$513	\$527	\$566	\$3	\$58	\$13	\$53	76.0	\$215
Alton, Canton & Youngstown.....	12 mos.	5,877	5,877	5,877	5,877	5,877	5,877	5,877	5,877	5,877	79.1	\$215
Atchafalaya, Topeka & Santa Fe.....	13,147	40,928	41,776	41,776	41,776	41,776	41,776	41,776	41,776	41,776	71.2	\$215
Atchafalaya, Topeka & Santa Fe.....	12 mos.	483	483	483	483	483	483	483	483	483	71.2	\$215
Atlanta & St. Andrews Bay.....	42	3,972	3,972	3,972	3,972	3,972	3,972	3,972	3,972	3,972	56.0	\$215
Atlanta & St. Andrews Bay.....	12 mos.	3,972	3,972	3,972	3,972	3,972	3,972	3,972	3,972	3,972	56.0	\$215
Atlanta & West Point.....	93	256	256	256	256	256	256	256	256	256	87.5	\$215
Atlanta & West Point.....	12 mos.	2,585	2,585	2,585	2,585	2,585	2,585	2,585	2,585	2,585	87.5	\$215
Western of Alabama.....	133	277	277	277	277	277	277	277	277	277	88.3	\$215
Western of Alabama.....	12 mos.	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	88.3	\$215
Atlantic & Danville.....	205	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	75.5	\$215
Atlantic & Danville.....	12 mos.	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	75.5	\$215
Atlantic Coast Line.....	5,237	11,858	16,336	15,109	13,298	1,713	1,888	338	2,083	2,937	69.9	\$215
Atlantic Coast Line.....	12 mos.	129,408	16,336	15,109	13,298	1,713	1,888	338	2,083	2,937	69.9	\$215
Charleston & Western Carolina.....	343	606	606	606	606	606	606	606	606	606	82.2	\$215
Charleston & Western Carolina.....	12 mos.	6,255	6,255	6,255	6,255	6,255	6,255	6,255	6,255	6,255	82.2	\$215
Baltimore & Ohio.....	6,167	383,955	18,651	432,661	378,089	54,946	45,456	8,887	89,688	76,176	81.1	\$215
Baltimore & Ohio.....	12 mos.	383,955	18,651	432,661	378,089	54,946	45,456	8,887	89,688	76,176	81.1	\$215
Staten Island Rapid Transit.....	29	198	198	198	198	198	198	198	198	198	109.1	\$215
Staten Island Rapid Transit.....	12 mos.	2,313	2,313	2,313	2,313	2,313	2,313	2,313	2,313	2,313	109.1	\$215
Baugh & Aroostook.....	602	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	87.5	\$215
Baugh & Aroostook.....	12 mos.	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	87.5	\$215
Bessemer & Lake Erie.....	208	26,218	26,218	26,218	26,218	26,218	26,218	26,218	26,218	26,218	81.1	\$215
Bessemer & Lake Erie.....	12 mos.	26,218	26,218	26,218	26,218	26,218	26,218	26,218	26,218	26,218	81.1	\$215
Boston & Maine.....	1,574	5,724	5,724	5,724	5,724	5,724	5,724	5,724	5,724	5,724	87.0	\$215
Boston & Maine.....	12 mos.	5,724	5,724	5,724	5,724	5,724	5,724	5,724	5,724	5,724	87.0	\$215
Cambria & Indiana.....	35	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	88.3	\$215
Cambria & Indiana.....	12 mos.	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	88.3	\$215
Canadian Pacific Lines in Maine.....	234	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	87.4	\$215
Canadian Pacific Lines in Maine.....	12 mos.	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	87.4	\$215
Canadian Pacific Lines in Vermont.....	90	182	182	182	182	182	182	182	182	182	109.4	\$215
Canadian Pacific Lines in Vermont.....	12 mos.	2,288	2,288	2,288	2,288	2,288	2,288	2,288	2,288	2,288	109.4	\$215
Central of Georgia.....	1,764	3,302	3,302	3,302	3,302	3,302	3,302	3,302	3,302	3,302	81.4	\$215
Central of Georgia.....	12 mos.	3,302	3,302	3,302	3,302	3,302	3,302	3,302	3,302	3,302	81.4	\$215
Central of New Jersey.....	613	48,683	48,683	48,683	48,683	48,683	48,683	48,683	48,683	48,683	79.4	\$215
Central of New Jersey.....	12 mos.	48,683	48,683	48,683	48,683	48,683	48,683	48,683	48,683	48,683	79.4	\$215
Central Vermont.....	397	850	850	850	850	850	850	850	850	850	94.2	\$215
Central Vermont.....	12 mos.	850	850	850	850	850	850	850	850	850	94.2	\$215
Cheapeake & Ohio.....	5,132	29,609	29,609	29,609	29,609	29,609	29,609	29,609	29,609	29,609	88.6	\$215
Cheapeake & Ohio.....	12 mos.	29,609	29,609	29,609	29,609	29,609	29,609	29,609	29,609	29,609	88.6	\$215
Chicago & Eastern Illinois.....	868	25,063	25,063	25,063	25,063	25,063	25,063	25,063	25,063	25,063	75.4	\$215
Chicago & Eastern Illinois.....	12 mos.	25,063	25,063	25,063	25,063	25,063	25,063	25,063	25,063	25,063	75.4	\$215
Chicago & Illinois Midland.....	130	658	658	658	658	658	658	658	658	658	74.3	\$215
Chicago & Illinois Midland.....	12 mos.	658	658	658	658	658	658	658	658	658	74.3	\$215
Chicago & North Western.....	7,857	155,933	155,933	155,933	155,933	155,933	155,933	155,933	155,933	155,933	88.6	\$215
Chicago & North Western.....	12 mos.	155,933	155,933	155,933	155,933	155,933	155,933	155,933	155,933	155,933	88.6	\$215
Chicago, Burlington & Quincy.....	8,806	263,700	263,700	263,700	263,700	263,700	263,700	263,700	263,700	263,700	75.4	\$215
Chicago, Burlington & Quincy.....	12 mos.	263,700	263,700	263,700	263,700	263,700	263,700	263,700	263,700	263,700	75.4	\$215
Chicago Great Western.....	1,470	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	77.0	\$215
Chicago Great Western.....	12 mos.	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	77.0	\$215
Chicago, Indianapolis & Louisville.....	541	1,605	1,605	1,605	1,605	1,605	1,605	1,605	1,605	1,605	75.9	\$215
Chicago, Indianapolis & Louisville.....	12 mos.	1,605	1,605	1,605	1,605	1,605	1,605	1,605	1,605	1,605	75.9	\$215
Chicago, Milwaukee & St. Paul.....	10,641	15,968	15,968	15,968	15,968	15,968	15,968	15,968	15,968	15,968	83.4	\$215
Chicago, Milwaukee & St. Paul.....	12 mos.	15,968	15,968	15,968	15,968	15,968	15,968	15,968	15,968	15,968	83.4	\$215
Chicago, Rock Island & Pacific.....	7,920	11,950	11,950	11,950	11,950	11,950	11,950	11,950	11,950	11,950	71.7	\$215
Chicago, Rock Island & Pacific.....	12 mos.	11,950	11,950	11,950	11,950	11,950	11,950	11,950	11,950	11,950	71.7	\$215
Chicago, St. Paul, Minn. & Omaha.....	1,616	2,513	2,513	2,513	2,513	2,513	2,513	2,513	2,513	2,513	85.4	\$215
Chicago, St. Paul, Minn. & Omaha.....	12 mos.	2,513	2,513	2,513	2,513	2,513	2,513	2,513	2,513	2,513	85.4	\$215
Clinchfield.....	302	19,879	19,879	19,879	19,879	19,879	19,879	19,879	19,879	19,879	60.7	\$215
Clinchfield.....	12 mos.	19,879	19,879	19,879	19,879	19,879	19,879	19,879	19,879	19,879	60.7	\$215

Now *Two* Men Can Upgrade 30 Cars A Day!

● Pick any two men in your yard crew! With an hour's training, they can upgrade 30 cars a day with the ADM Freight Liner System. They just follow three simple steps shown at the left.

In a matter of minutes this car was upgraded and ready for a bulk lading. Cost of labor and materials for spot patching was only 15 cents a square foot.

Whether you are patching or completely relining cars, the ADM Freight Liner System is fast, low cost and practical.

Apply at any location, in any weather.

In service for over a year, the ADM Freight Liner System not only upgrades cars faster but reduces both damage claims and per diem charges. Claims for sacks and packaged goods torn in transit are drastically reduced. Leakage of bulk shipments is controlled.

Qualified ADM service engineers provide everything needed to start your yard crew on an upgrading program. For an ADM Freight Liner System demonstration on your own cars at any track location, write, wire or phone (FEderal 3-2112 -Minneapolis) ADM Freight Liner System, 700 Investors Building, Minneapolis 2, Minnesota.

ADM

Freight Liner SYSTEM

**Archer-
Daniels-
Midland
company**



OTHER ADM PRODUCTS: Linseed, Soybean and Marine Oils, Paint Vehicles, Synthetic and Natural Resins, Polyesters, Fatty Acids and Alcohols, Hydrogenated Glycerides, Sperm Oil, Foundry Binders, Industrial Cereals, Vegetable Proteins, Wheat Flour, Dehydrated Alfalfa, Livestock and Poultry Feeds.



1 Spray, brush or roll ADM Freight Liner Plastic on wood or metal areas to be patched. Freight Liner plastic is ready-to-use as it comes from the drum. Standard spray equipment can be used. No special surface preparation required.

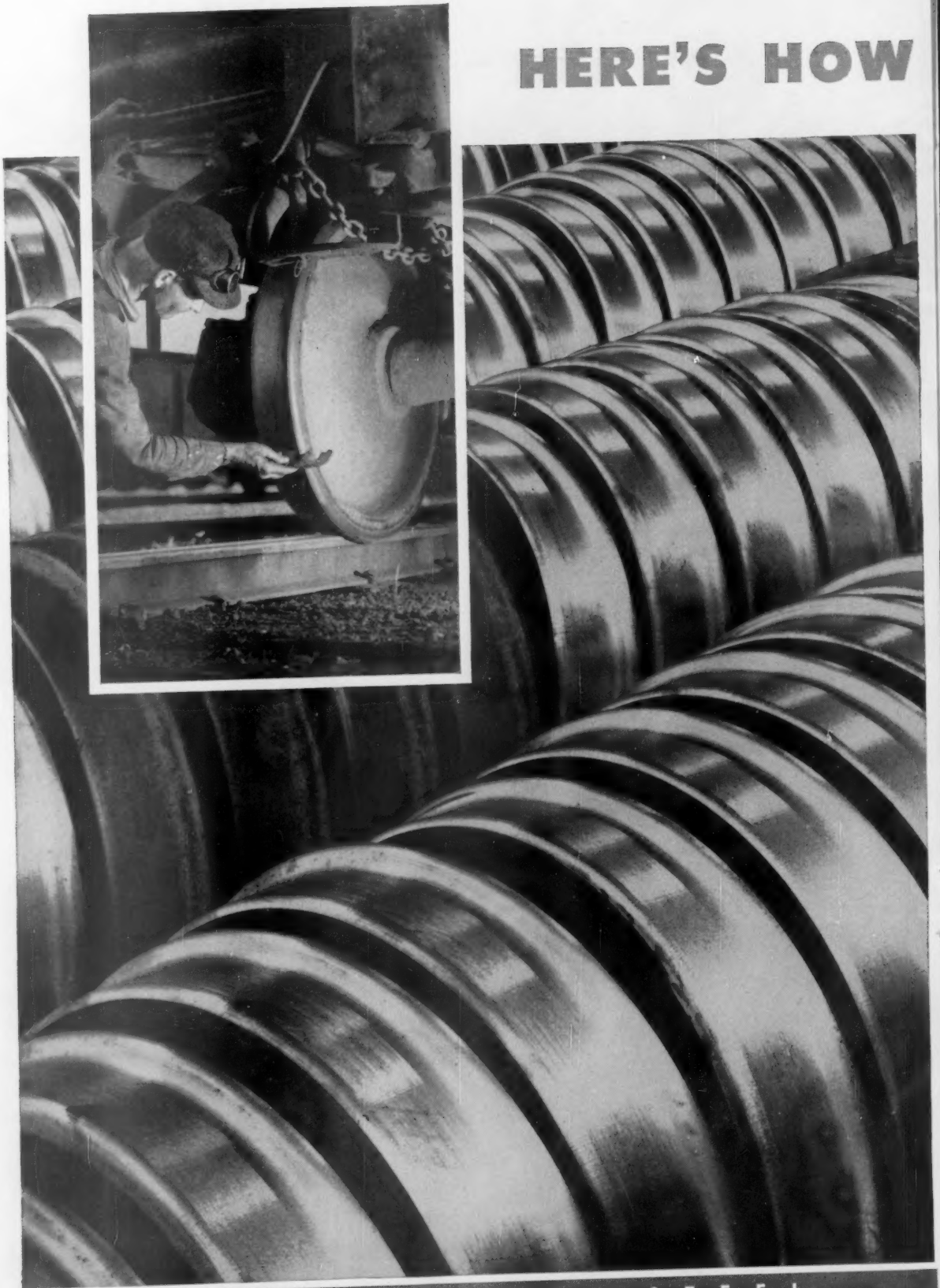


2 Apply Freight Liner Fiberglass over the area to be patched while first coat of Freight Liner Plastic is still wet. Fiberglass can easily be cut with shears to desired size. Plastic plus reinforcing cloth gives a finished tensile strength of 1650 pounds per square inch.



3 Apply second Freight Liner Plastic coating to impregnate reinforcing Fiberglass. Coating air dries rapidly to tough, smooth, abrasion-resistant surface. Seals out dirt and insects. Where large broken areas require added strength, the coatings may be laminated in several layers.

HERE'S HOW



UNITED STATES STEEL

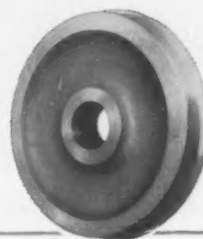
February 20, 1956 RAILWAY AGE

USS WROUGHT STEEL WHEELS SAVE YOU MONEY

LESS DEADWEIGHT

More Cargo

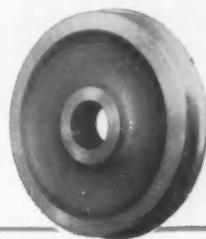
Because they are lighter than ordinary wheels, there will be some saving of unsprung weight, which can be directly converted into payload capacity—or result in savings due to the decreased load. Another advantage—reduced unsprung weight means less pounding on the track system.



FEWER SERVICE INTERRUPTIONS

More Service Miles

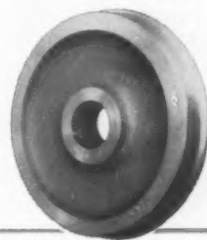
USS Wrought Steel Wheels last far longer than ordinary wheels, and in the long run, cost less. In addition, a car rolling on Wrought Steel Wheels spends more time in service and less time on a repair siding, resulting in increased revenue to the railroad.



LOWER MAINTENANCE COSTS

Higher Profits

Elimination or reduction of labor requirements represents one of the best ways to save money today. Maintenance expenditures for cars equipped with wear-resistant Wrought Steel Wheels are considerably lower, as they require far less wheel servicing than cars with ordinary type wheels.



WHY USS WROUGHT STEEL WHEELS LAST LONGER

USS Wrought Steel Wheels deliver more ton-miles per dollar than any other type wheel because they possess *hardness*, which enables them to resist wear; *strength*, which carries the heavy load; and *ductility*, which keeps sudden brittle fractures to a minimum. These inherent properties of steel are improved by forging, roll-

ing, and control-cooling—the Wrought process.

Two strategically located wheel shops are prepared to fill your orders for Wrought Steel Wheels: McKees Rocks (Pittsburgh), Pennsylvania shop, serving the East and Southeast, and the Gary, Indiana shop, supplying the Western and Southern Lines.

UNITED STATES STEEL CORPORATION, PITTSBURGH
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

• COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
• TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.

USS WROUGHT STEEL WHEELS



6-70

UNITED STATES STEEL

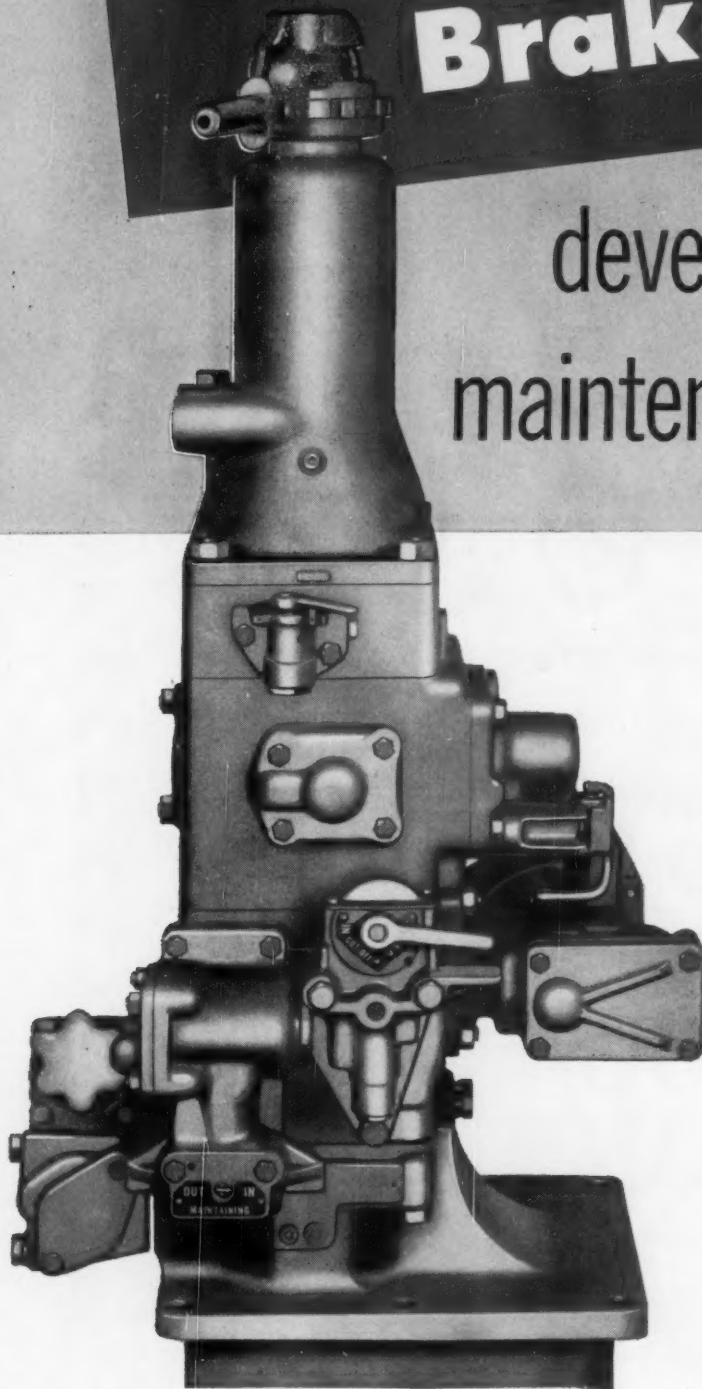
REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)
MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1955

Name of Road	Average mileage operated during period	Operating Revenues				Maint. Way and Structures				Operating Expenses				Net from railway operation	Net railway operating income								
		1955	1954	1955	1954	Total	Retire-ments	Total	Retire-ments	1955	1954	1955	1954										
Colorado & Southern.....	Dec.	718	1,205	70	1,490	1,310	144	266	32	207	162	42	35	570	1,005	68.8	76.7	465	235	180	86		
.....	12 mos.	730	13,118	805	15,561	14,424	2,827	2,285	298	2,065	2,622	498	45	377	11,803	11,403	75.9	79.1	3,758	1,841	1,413	1,255	
Ft. Worth & Denver.....	Dec.	1,037	1,691	142	2,059	2,096	402	305	28	394	260	45	65	796	1,773	1,492	86.1	71.2	286	51	128	338	
.....	12 mos.	1,037	19,659	1,669	23,265	23,701	4,453	4,394	403	3,403	3,289	526	74	8,108	16,347	17,431	78.9	73.5	4,918	987	1,967	2,870	
Colorado & Wyoming.....	Dec.	40	214	....	338	286	76	24	1	30	23	11	2	124	240	165	71.1	57.6	98	56	37	56
.....	12 mos.	40	2,371	....	3,758	2,813	447	236	101	363	330	133	17	1,312	2,290	1,827	60.9	64.9	1,468	811	629	447
Columbus & Greenville.....	Dec.	168	154	....	163	131	38	27	4	27	25	6	6	63	165	133	101.1	101.3	....	....	....	....
.....	12 mos.	168	1,760	168	1,820	1,844	371	422	44	297	304	75	70	606	1,575	1,592	85.8	86.4	261	240	46	34	
Delaware & Hudson.....	Dec.	792	4,078	165	4,401	4,320	547	852	68	723	817	175	94	1,623	3,250	3,578	73.9	82.8	1,150	292	928	424	
.....	12 mos.	792	49,318	1,874	52,884	49,083	6,394	7,978	659	8,817	9,462	2,134	1,046	17,972	36,423	39,532	80.2	80.1	15,561	5,752	10,664	17,137	
Delaware, Lackawanna & Western	Dec.	962	65,684	9,141	82,691	78,631	13,342	9,514	2,018	12,417	12,686	2,887	2,202	39,173	70,786	65,032	85.6	82.7	11,905	7,910	2,629	7,072	
Denver & Rio Grande Western.....	Dec.	2,155	6,226	231	6,668	6,071	425	596	104	998	938	290	218	2,036	3,951	3,930	59.3	64.7	2,717	1,369	1,330	1,234	
.....	12 mos.	2,155	72,942	2,965	78,393	73,170	8,207	9,177	1,213	11,390	11,474	3,403	2,369	23,066	48,508	48,409	61.9	66.2	29,885	14,508	14,954	14,070	
Detroit & Mackinac.....	Dec.	232	216	226	204	46	4	3	369	320	119	44	487	1,521	1,458	69.1	72.8	681	416	303	280
.....	12 mos.	232	2,161	....	2,292	2,729	....	....	6	75	70	21	20	250	357	309	43.2	42.3	469	135	191	190
Detroit & Toledo Shore Line.....	Dec.	50	7,793	....	8,376	7,522	920	871	47	798	717	243	210	2,471	4,575	4,266	54.6	56.5	3,801	1,204	1,125	958
.....	12 mos.	50	7,793	....	8,376	7,522	920	871	47	798	717	243	210	2,471	4,575	4,266	54.6	56.5	3,801	1,204	1,125	958
Detroit, Toledo & Ironton.....	Dec.	464	1,901	....	1,965	1,731	154	147	37	360	259	90	48	476	1,136	916	57.8	53.1	829	Cr. 1,468	2,352	1,128
.....	12 mos.	464	20,341	....	21,039	17,075	3,165	2,964	329	3,469	3,077	1,097	514	5,251	13,303	13,230	63.2	74.7	7,742	1,334	6,635	4,136
Duluth, Missabe & Iron Range.....	Dec.	569	44,939	9	52,280	39,075	4,757	6,015	766	7,286	7,963	1,544	123	15,717	29,724	28,597	58.9	73.1	22,557	11,960	10,292	5,061	
.....	12 mos.	569	44,939	9	52,280	39,075	4,757	6,015	766	7,286	7,963	1,544	123	15,717	29,724	28,597	58.9	73.1	22,557	11,960	10,292	5,061	
Duluth, South Shore & Atlantic.....	Dec.	553	7,232	43	7,678	6,799	1,677	1,568	128	1,473	1,468	278	341	2,547	6,307	6,048	82.1	80.0	1,371	370	752	302	
.....	12 mos.	553	7,232	43	7,678	6,799	1,677	1,568	128	1,473	1,468	278	341	2,547	6,307	6,048	82.1	80.0	1,371	370	752	302	
Duluth, Winnipeg & Pacific.....	Dec.	175	559	1	565	497	65	70	4	75	62	2	6	251	407	358	72.1	71.9	158	38	92	34	
.....	12 mos.	175	5,881	11	5,962	5,592	773	912	53	831	838	26	69	2,599	4,366	4,401	73.2	78.7	1,596	461	250	87	
Elgin, Joliet & Eastern.....	Dec.	236	4,399	....	4,400	4,329	279	289	333	7,157	13,534	1,225	409	17,811	30,585	35,193	60.7	81.4	19,818	9,117	6,874	2,078
.....	12 mos.	236	41,099	....	50,403	43,232	2,979	2,899	333	7,157	13,534	1,225	409	17,811	30,585	35,193	60.7	81.4	19,818	9,117	6,874	2,078
Erie.....	Dec.	2,226	12,202	7,005	13,989	12,155	1,208	1,302	211	2,316	2,126	486	389	6,356	11,162	10,150	79.8	83.5	2,828	823	1,457	1,035	
.....	12 mos.	2,226	142,317	7,005	161,448	152,087	19,378	20,888	2,565	25,323	25,052	6,022	4,338	70,987	128,047	124,262	79.3	81.7	33,401	10,271	15,668	12,686	
Florida East Coast.....	Dec.	571	2,544	501	3,450	3,133	233	392	45	397	763	99	90	1,376	2,239	2,593	64.9	82.8	1,211	178	754	104	
.....	12 mos.	571	25,811	530	34,273	31,682	4,449	5,189	530	5,792	6,289	1,185	926	12,493	25,423	26,889	74.2	84.9	8,850	1,178	5,182	228	
Georgia Railroad.....	Dec.	321	629	30	734	717	124	112	9	138	121	28	37	342	677	620	92.3	86.4	8,850	1,178	5,182	228	
.....	12 mos.	321	6,294	211	7,528	8,951	1,367	1,451	113	1,447	1,549	389	12	342	677	620	92.3	86.4	8,850	1,178	5,182	228	
Georgia & Florida.....	Dec.	332	3,469	....	3,524	3,328	982	1,069	46	403	431	95	229	1,007	2,812	2,996	99.0	90.0	712	174	227	111
.....	12 mos.	332	3,469	....	3,524	3,328	982	1,069	46	403	431	95	229	1,007	2,812	2,996	99.0	90.0	712	174	227	111
Grand Trunk Western.....	Dec.	951	4,652	246	5,427	4,743	598	579	109	709	772	94	92	2,739	4,340	3,940	80.0	83.1	1,087	325	265	309	
.....	12 mos.	951	53,869	2,006	61,670	56,339	7,313	8,223	723	9,117	9,907	1,134	988	27,764	47,557	47,462	77.1	84.2	14,113	3,827	4,689	658	
Can. Nat'l Lines in New Eng.....	Dec.	172	1,171	4	4,410	2,022	31	64	9	37	25	....	3	150	256	251	62.4	124.3	154	26	71	126
.....	12 mos.	172	11,711	....	12,028	10,979	1,757	1,868	118	373	325	....	32	1,434	2,678	2,342	103.9	131.0	291	1,121	1,453	1,453
Great Northern.....	Dec.	8,286	236,236	10,943	267,095	250,254	48,224	46,723	4,494	41,585	42,716	8,606	5,435	88,246	194,441	186,621	72.8	75.4	72,654	37,406	30,154	24,226	
.....	12 mos.	8,286	236,236	10,943	267,095	250,254	48,224	46,723	4,494	41,585	42,716	8,606	5,435	88,246	194,441	186,621	72.8	75.4	72,654	37,406	30,154	24,226	
Green Bay & Western.....	Dec.	224	346	....	353	352	62	43	4	54	33	9	23	112	268	218	76.0	62.0	85	13	40	57
.....	12 mos.	224	4,385	....	4,478	4,338	850	1,072	51	507	556	102	270	1,276	3,109	3,380	69.7	77.9	1,368	659	424	218
Gulf, Mobile & Ohio.....	Dec.	2,757	6,079	396	6,997	6,890	1,171	1,212	41	1,314	1,085	285	281	2,316	5,529	5,131	73.0	74.5	1,468	282	787	796	
.....	12 mos.	2,757	74,268	4,039	83,759	81,179	12,693	12,463	922	13,127	15,205	3,397	3,276	25,171	61,175	60,373	73.0	74.4	22,584	8,459	9,831	8,922	
Illinois Central.....	Dec.	6,531	21,922	22,480	294,525	275,959	43,809	42,640	5,404	48,081	45,903	9,370	6,518	102,485	213,307	209,010	72.4	75.7	81,219	41,638	32,230	28,258	
.....	12 mos.	6,531	21,922	22,480	294,525	275,959	43,809	42,640	5,404	48,081	45,903	9,370	6,518	102,485	213,307	209,010	72.4	75.7	81,219	41,638	32,230	28,258	
Illinois Terminal.....	Dec.	355	838	38	1,002	924	78	239	74	235	186	42	48	397	816	1,001	81.4	108.3	186	48	85	128	
.....	12 mos.	355	10,382	485	12,251	10,904	1,674	1,737	365	2,143	1,826	498	539	4,607	9,684	9,464	79.0	86.2	2,568	1,339	607	765	
Kansas City Southern.....	Dec.	891	3,566	185	4,068	3,221	400	647	66	394	36												

DS-24-M Brake Valve

develops outstanding
maintenance economies



THE Brake Pipe Pressure Maintaining Feature provides more uniform distribution of braking throughout the train. It develops these outstanding maintenance economies—

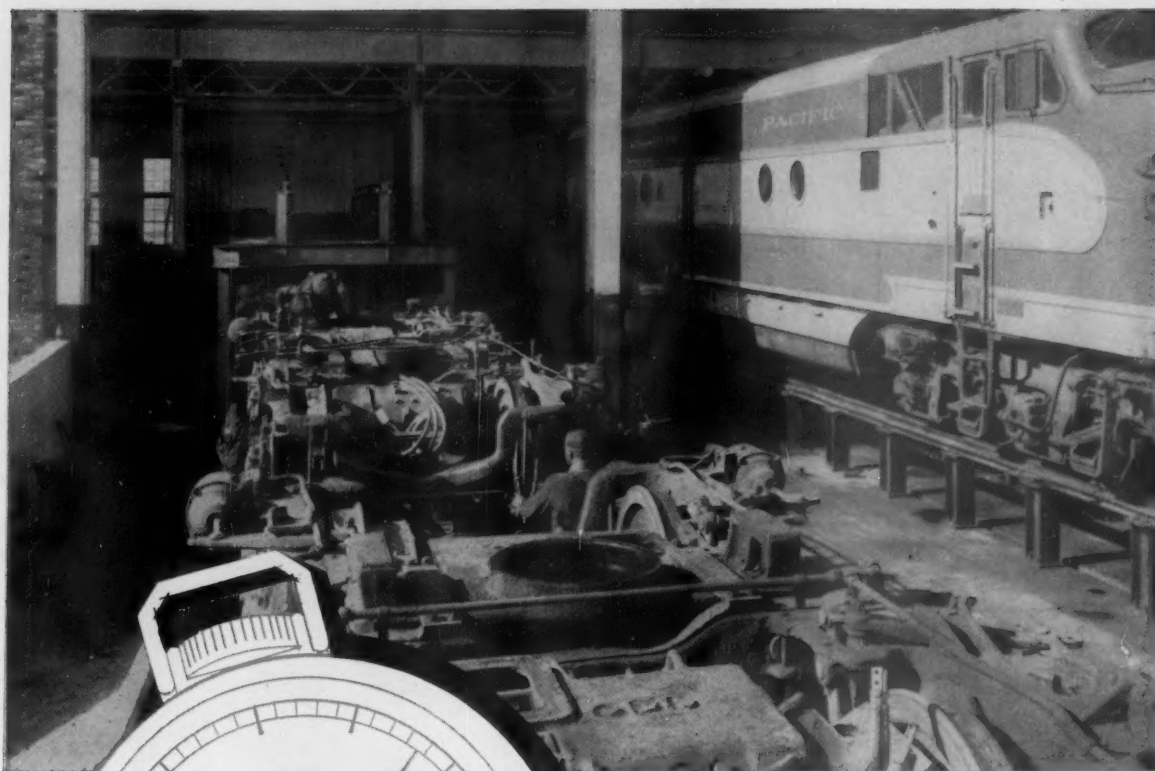
1. Less rigging maintenance and fewer damaged brake heads.
2. More uniform brake shoe wear.
3. Reduced wheel damage from overheating at front end of train.

These economies can be realized on 24-RL Brake Valves now in service by substituting a Conversion Filling Piece for the existing filling piece.

Write for our Circular Notice No. 1130 which gives complete details.

**Westinghouse Air Brake
COMPANY**

AIR BRAKE DIVISION  WILMERDING, PENNA.



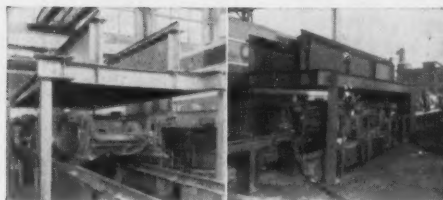
Whiting Drop Table Keeps Diesels Rolling

In the new Missouri Pacific shops at North Little Rock, Arkansas, a Whiting 100-ton Drop Table helps provide first-class service and uninterrupted repairs for Diesel locomotives — handling 90 to 100 units a day! Engineered and built to the Missouri Pacific's special requirements, this Whiting Drop Table not only speeds repair work, but also saves manpower, assures greater safety and reduces overall costs. More than 500 Whiting Drop Table installations with capacities from 10 to 150 tons serve the railroad industry today. Talk over your requirements with a Whiting engineer . . . he will help you decide the type and size of drop table best suited to your shop layout.

Write today . . . for Whiting Drop Table Bulletin DT-C-404. It shows how Whiting installations save time on locomotive, coach and tender repairs.

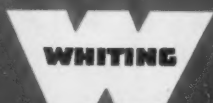
WHITING CORPORATION

15603 Lathrop Avenue, Harvey, Illinois



Temporarily powered repaired truck pushes old truck off table.

Down goes repaired truck into pit to be racked to service track.



DROP TABLES



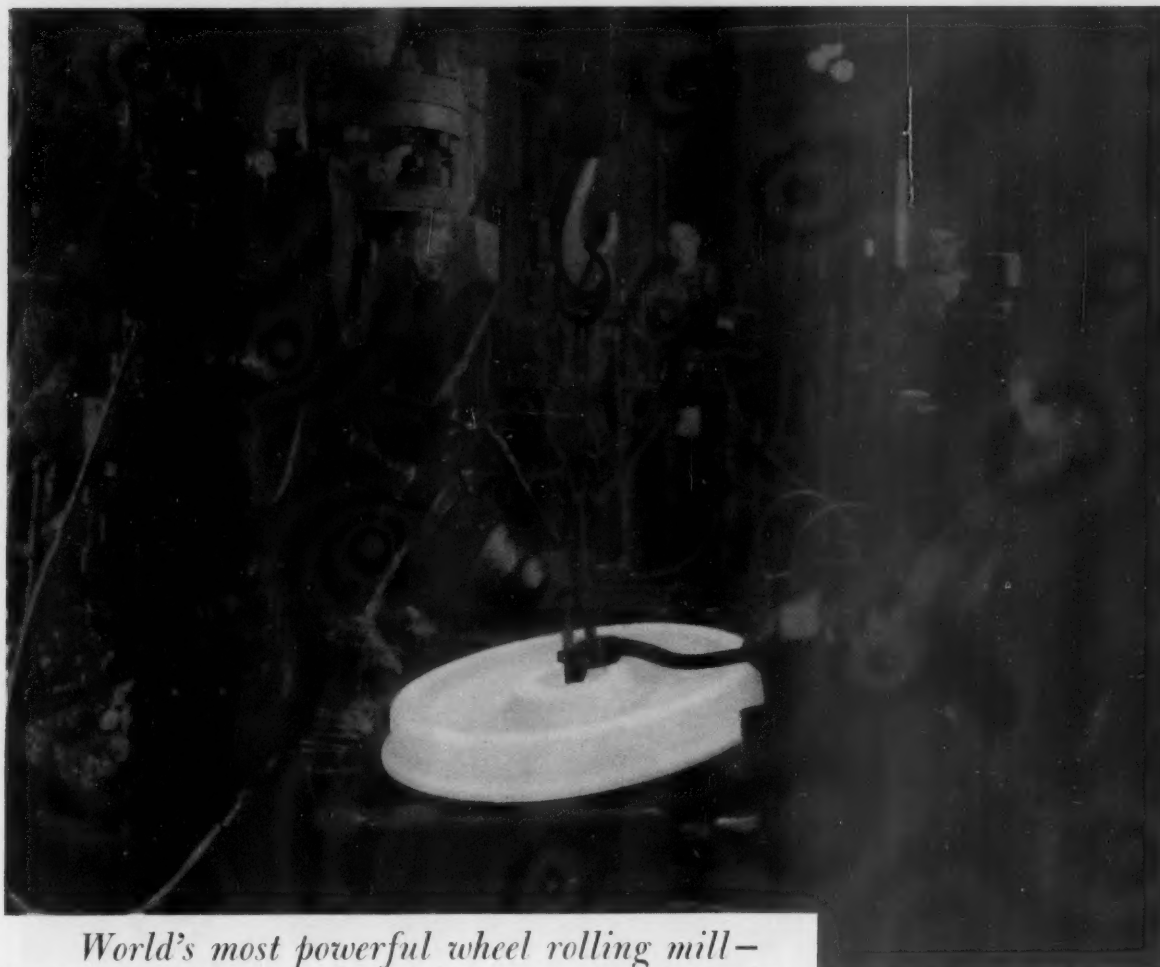
Up it comes on Whiting Drop Table to position under locomotive.

In position, ready for installation—all in a matter of minutes!

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)
MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1955

Name of Road	Average mileage operated during period	Operating Revenues			Total Revenues			Operating Expenses			Total Expenses			Operating ratio			Net railway tax operation			Net railway tax operating income						
		Freight	Pass.	Total (inc. misc.)	1955	1954	Total	Retire-ments	1955	1954	Total	Retire-ments	1955	1954	Total	Trans- portation	1955	Total	Operating ratio	1955	1954	Total	Operating ratio	1955	1954	Total
Pittsburgh & Shawmut.....	97	1,841	141	1,211	385	371	57	406	580	141	12	38	144	125	101.7	103.7	57	23
Pittsburgh & West Virginia.....	132	688	...	693	576	114	101	23	120	126	37	62	214	556	511	80.3	88.8	86.1
Reading.....	1,305	9,791	652	8,625	7,906	1,312	1,175	287	1,414	438	742	2,267	2,419	5,845	73.3	80.0	2,396	1,005	1,399	1,005	1,399	1,005	1,399	1,005	1,399	
Richmond, Fredericksburg & Potomac Dec.	1,305	105,309	6,809	119,623	109,486	15,930	13,695	2,482	22,726	21,940	5,026	1,917	46,569	92,372	86,653	77.2	79.1	27,251	10,434	15,113	13,475	10,434	15,113	13,475	10,434	
Rutland.....	118	1,442	528	2,368	2,295	221	266	24	315	405	67	27	840	1,544	1,640	65.2	71.5	824	253	439	262	253	439	262	253	
Sacramento Northern.....	391	380	...	394	381	62	51	8	50	60	13	23	159	339	329	86.3	86.3	8,655	4,246	2,982	2,791	4,246	2,982	2,791	4,246	
St. Louis-San Francisco.....	267	2,331	...	4,811	4,351	923	898	103	613	638	161	309	1,768	3,957	4,057	82.2	89.7	411	315	246	127	315	246	127	315	
St. Louis-San Francisco & Texas.....	155	280	4	311	349	59	45	6	23	27	14	26	159	279	270	89.9	77.4	31	302	
St. Louis Southwestern Lines.....	1,561	64,570	237	66,952	59,070	8,143	8,068	781	7,250	7,186	1,307	2,116	19,748	39,404	37,533	58.9	63.5	27,548	13,629	10,686	8,693	13,629	10,686	8,693	13,629	
Seaboard Air Line.....	4,064	11,715	1,279	14,428	13,581	1,750	2,152	340	2,254	2,304	569	403	4,941	9,962	9,683	69.0	71.3	4,466	1,787	2,270	2,481	1,787	2,270	2,481		
Southern Railway.....	6,289	20,955	1,395	24,356	22,715	2,770	3,228	692	3,787	3,498	783	348	7,610	15,540	15,421	63.8	67.9	8,816	2,707	5,556	4,197	2,707	5,556	4,197		
Alabama Great Southern.....	326	18,257	778	20,572	17,406	2,936	2,674	496	3,622	3,498	710	436	5,882	13,937	12,962	67.7	71.1	6,635	2,875	3,231	2,565	2,875	3,231	2,565	2,875	
Cinn., New Orleans & Texas Pacific Dec.	337	3,273	169	3,828	3,631	771	996	488	641	695	145	74	914	2,597	2,790	67.8	76.9	1,231	681	670	388	681	670	388		
Georgia Southern & Florida.....	475	805	753	10,723	9,228	2,829	2,621	122	929	1,110	43	18	3,427	7,538	7,366	46.5	39.3	3,618	309	235	224	309	235	224		
New Orleans & Northeastern.....	204	11,920	548	13,274	11,808	1,916	2,038	255	1,635	1,765	513	251	2,718	7,236	7,546	54.5	63.9	6,037	3,399	2,434	1,672	3,399	2,434	1,672		
Southern Pacific.....	8,125	34,674	2,760	40,537	42,049	8,836	6,766	1,133	7,141	8,437	1,762	831	17,293	36,255	35,978	89.4	85.6	4,281	685	2,436	3,448	685	2,436	3,448		
Texas & New Orleans.....	4,315	10,463	458	11,777	11,281	2,363	2,268	677	109,099	104,847	23,125	10,802	208,860	423,626	401,274	80.4	80.4	106,091	42,211	49,525	42,135	42,211	49,525	42,135		
Spokane International.....	150	213	351	137,202	127,350	26,368	23,964	1,998	20,155	18,006	1,955	3,407	48,447	105,482	99,538	76.9	78.2	31,720	11,348	7,711	6,039	11,348	7,711	6,039		
Spokane, Portland & Seattle.....	947	2,339	99	2,608	2,589	201	471	83	352	315	113	26	1,049	1,758	1,708	67.4	69.0	851	332	457	655	332	457	655		
Tennessee Central.....	286	5,006	16	5,163	4,585	856	908	89	759	712	239	178	1,602	3,697	3,588	71.6	78.3	1,466	291	558	233	1,466	291	558		
Texas & Northern.....	8	137	...	1,141	1,136	5	5	1	117	102	33	13	9	32	20	22.3	30.6	1,309	18	1,027	411	1,309	18	1,027	411	
Texas & Pacific.....	1,831	6,270	394	7,433	7,353	906	1,101	116	1,179	1,070	251	212	2,580	5,245	4,878	70.6	66.3	2,189	607	1,184	953	2,189	607	1,184		
Texas Mexican.....	161	208	161	226	243	80	59	7	33	38	10	10	76	218	194	96.6	79.7	836	329	208	138	836	329	208		
Toledo, Peoria & Western.....	239	562	...	571	456	68	68	6	45	77	11	61	160	342	449	60.0	98.5	229	125	52	38	229	125	52		
Union Pacific.....	9,805	36,007	2,692	42,814	39,928	5,496	5,592	743	9,002	7,923	1,680	1,139	15,764	33,533	33,533	78.6	83.6	9,161	6,901	769	563	9,161	6,901	769		
Utah.....	99	166	...	166	122	6	16	2	99	13	9	9	413	1,065	1,067	100.3	60.0	3	Cr.	3	49	312	Cr. 238	313		
Virginian.....	611	4,951	1	4,111	3,591	370	312	77	819	728	198	51	800	2,144	1,972	52.2	54.9	1,967	735	3,006	1,871	1,967	735	3,006		
Wabash.....	2,993	8,807	504	10,293	9,684	979	873	166	1,361	1,222	378	326	4,253	7,360	6,751	71.5	69.7	2,933	Cr. 3,894	6,113	3,706	2,933	Cr. 3,894	6,113		
Ann Arbor.....	294	749	...	9,323	8,735	1,063	1,092	167	1,737	1,570	351	347	4,024	7,434	7,554	86.4	77.6	312	Cr. 238	313	127	312	Cr. 238	313		
Western Maryland.....	846	4,106	4	4,364	3,408	390	1,230	55	707	966	214	130	1,289	2,750	3,671	63.0	107.7	1,889	575	1,006	688	1,889	575	1,006		
Western Pacific.....	1,193	3,514	153	3,752	3,940	811	851	93	666	649	194	250	1,586	3,665	3,311	97.7	84.0	87	Cr. 251	239	542	87	Cr. 251	239		
Wisconsin Central.....	1,042	2,103	42	2,324	2,345	400	283	67	428	542	186	70	1,181	2,199	2,092	94.6	89.2	124	124	159	323	124	124	159		
Wisconsin Central.....	1,042	2,103	42	2,324	2,345	400	283	67	428	542	186	70	1,181	2,199	2,092	94.6	89.2	124	124	159	323	124	124	159		



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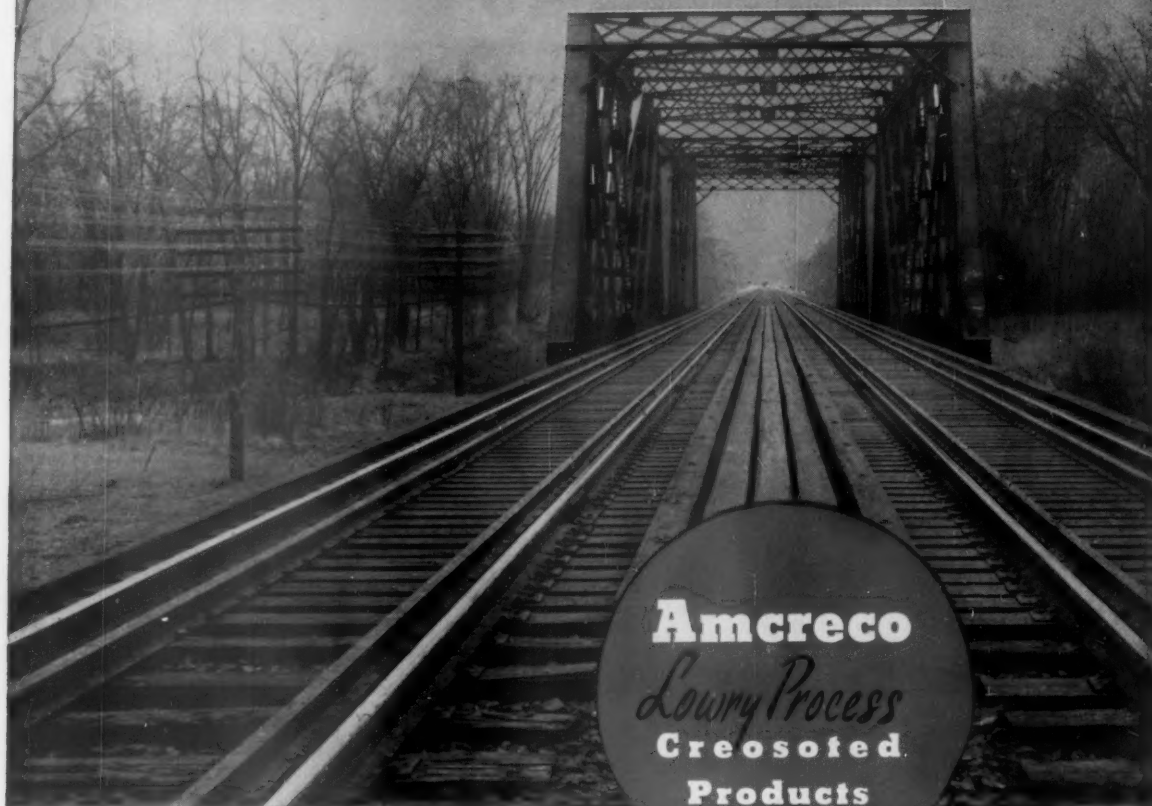


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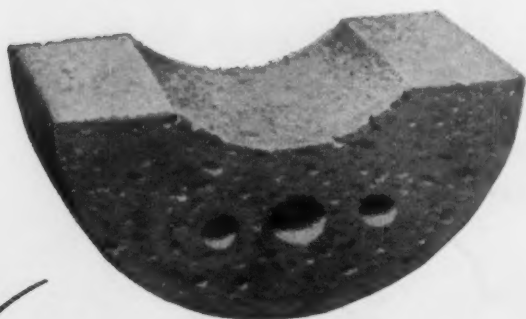
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